

# A1-F18AC-SRM-211

1 MAY 1999

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## TECHNICAL MANUAL

### ORGANIZATIONAL, INTERMEDIATE, AND DEPOT MAINTENANCE

## STRUCTURE REPAIR

## WING

NAVY MODEL  
F/A-18A AND F/A-18B  
161353 AND UP

N00140-93-D-AC68

This manual supersedes A1-F18AC-SRM-211 dated 1 March 1990,  
including Change 9, dated 1 March 1997.

This volume is one of three volumes and is incomplete without A1-F18AC-SRM-210 and A1-F18AC-SRM-212.  
This volume contains WP008 00 through WP015 04.

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NATEC ELECTRONIC MANUAL

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES

## List of Current Changes

Original 0 . . . . . 1 May 1999

Only those work packages/pages assigned to the manual are listed in this index. Insert Change \_\_, dated \_\_\_\_\_. Dispose of superseded work packages/pages. Superseded classified work packages/pages shall be destroyed in accordance with applicable security regulations. If changed pages are issued to a work package, insert the changed pages in the applicable work package. The portion of text affected in a change or revision is indicated by change bars or the symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands, change bars, or MAJOR CHANGE symbols. Changes to diagrams may be indicated by shaded borders.

Total number of pages in this manual is 1108 consisting of the following:

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Title . . . . .	0	009 01		82 Blank . . . . .	0	4 Blank . . . . .	0
A . . . . .	0	1 - 70 . . . . .	0	83 . . . . .	0	5 . . . . .	0
TPDR-1 . . . . .	0	010 00		84 Blank . . . . .	0	6 Blank . . . . .	0
TPDR-2 Blank . . . . .	0	1 - 58 . . . . .	0	85 . . . . .	0	7 - 17 . . . . .	0
HMWS-1 . . . . .	0	010 01		86 Blank . . . . .	0	18 Blank . . . . .	0
HMWS-2 . . . . .	0	1 - 47 . . . . .	0	87 . . . . .	0	19 - 25 . . . . .	0
HMWS-3 . . . . .	0	48 Blank . . . . .	0	88 Blank . . . . .	0	26 Blank . . . . .	0
HMWS-4 . . . . .	0	010 02		89 - 107 . . . . .	0	014 02	
HMWS-5 . . . . .	0	1 - 10 . . . . .	0	108 Blank . . . . .	0	1 . . . . .	0
HMWS-6 . . . . .	0	010 03		012 02		2 Blank . . . . .	0
HMWS-7 . . . . .	0	1 - 38 . . . . .	0	1 - 3 . . . . .	0	3 . . . . .	0
HMWS-8 . . . . .	0	011 00		4 Blank . . . . .	0	4 Blank . . . . .	0
008 00		1 - 23 . . . . .	0	5 - 11 . . . . .	0	5 . . . . .	0
1 - 74 . . . . .	0	24 Blank . . . . .	0	12 Blank . . . . .	0	6 Blank . . . . .	0
008 01		011 01		012 03		015 00	
1 - 37 . . . . .	0	1 - 21 . . . . .	0	1 - 28 . . . . .	0	1 - 28 . . . . .	0
38 Blank . . . . .	0	22 Blank . . . . .	0	013 00		015 01	
008 02		011 02		1 - 38 . . . . .	0	1 - 27 . . . . .	0
1 - 39 . . . . .	0	1 - 27 . . . . .	0	013 01		28 Blank . . . . .	0
40 Blank . . . . .	0	28 Blank . . . . .	0	1 - 17 . . . . .	0	015 02	
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1 - 14 . . . . .	0	1 - 22 . . . . .	0	013 02		015 03	
008 04		012 01		1 - 40 . . . . .	0	1 - 37 . . . . .	0
1 - 21 . . . . .	0	1 - 73 . . . . .	0	014 00		38 Blank . . . . .	0
22 Blank . . . . .	0	74 Blank . . . . .	0	1 - 24 . . . . .	0	015 04	
008 05		75 . . . . .	0	014 01		1 - 54 . . . . .	0
1 - 80 . . . . .	0	76 Blank . . . . .	0	1 - 3 . . . . .	0		
008 06		77 - 81 . . . . .	0				
1 - 26 . . . . .	0						
009 00							
1 - 20 . . . . .	0						

# Zero in this column indicates an original page.

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LIST OF TECHNICAL PUBLICATIONS DEFICIENCY REPORTS (TPDR) INCORPORATED  
ORGANIZATIONAL, INTERMEDIATE, AND DEPOT MAINTENANCE  
STRUCTURE REPAIR  
WING

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1. The TPDRs listed below have been incorporated in this issue.

**Identification Number/  
QA Sequence Number**

**Location**

39783-97-0089

Page A

N09030-95-0001

WP 010 01, Pg. 43, Para. 37

WP 010 01, Pg. 45, Figure 10





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**WARNINGS APPLICABLE TO HAZARDOUS MATERIALS**

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Warnings for hazardous materials listed in this manual are designed to warn personnel of hazards associated with such items when they come in contact with them by actual use. Additional information related to hazardous materials is provided in OPNAVINST 5100.23, Navy Occupational Safety and Health (NAVOSH) Program Manual, NAVSUPINST 5100.27, Navy Hazardous Material Control Program, and the DOD 6050.5, Hazardous Materials Information System (HMIS) series publications. For each hazardous material used within the Navy, a material safety data sheet (MSDS) is required to be provided and available for review by users. Consult your local safety and health staff concerning any questions on hazardous chemicals, MSDS'S, personal protective equipment requirements, and appropriate handling and emergency procedures and disposal guidance.

Complete warnings for hazardous materials referenced in this manual are identified by use of an icon, nomenclature and specification or part number of the material, and a numeric identifier. The numeric identifiers have been assigned to the hazardous materials in the order of their appearance in the manual. Each hazardous material is assigned only one numeric identifier. Repeated use of a specific hazardous material references the numeric identifier assigned at its initial appearance. The approved icons and their applications are shown below in Explanation of Hazardous Symbols.

In the text of the manual, the caption **WARNING** will not be used for hazardous materials. Such warnings will be identified by an icon and numeric identifier. The material nomenclature will also be provided. The user is directed to refer to the corresponding numeric identifier listed in this WP under the heading HAZARDOUS MATERIALS WARNINGS for the complete warning applicable to the hazardous material.

Biohazard



Fire



Breathing Hazard



Highly Toxic

Corrosive  
(Caustic or Acidic)

Ingestion Hazard



Cryogenic



Oxidizer



Explosive



Radiation



Eye Protection



Skin Hazard



## EXPLANATION OF HAZARDOUS SYMBOLS



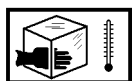
The abstract symbol shows a material that may contain bacteria or viruses that present a health hazard.



The symbol of a human figure in a cloud shows that breathing this material can present a health hazard.



The symbol of drops of a liquid burning a hand shows a material that causes burns to human skin or tissue.



The symbol of a hand in a block of ice shows a material is so cold it will burn your skin on contact.



The rapidly expanding symbol shows that the material may explode if subjected to high temperature, sources of ignition, or high pressure.



The symbol of a person wearing goggles shows a material that can injure your eyes.



The symbol of a fire shows that a material can ignite and burn you.



The symbol of a skull and crossbones shows a material that is highly toxic and can be a danger to life and health.



The symbol of a liquid entering the mouth shows that eating or drinking this material can cause a health hazard.



The symbol of an "O" with a flame shows a material that will promote fire and cannot be stored near flammable or organic materials.

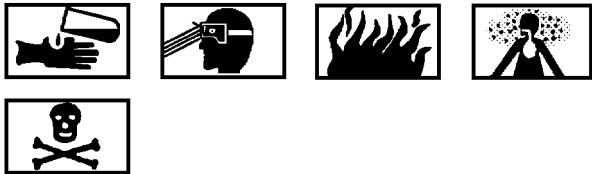

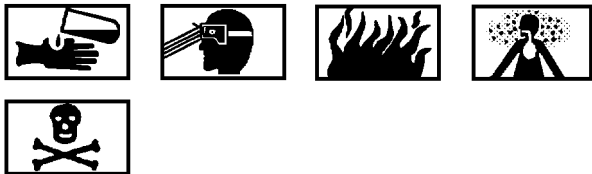
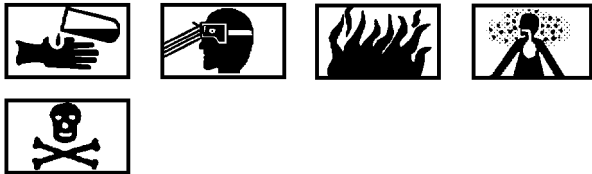


The symbol of three circular wedges shows that the material emits radioactive energy and can injure human tissue or organs.





















The hand symbol shows a material that can irritate the skin or enter the body through the skin and cause a health hazard.














## HAZARDOUS MATERIALS WARNINGS

<u>Index</u>	<u>Material</u>	<u>Warning</u>
1	Adhesive, EA 956	Adhesive, EA 956, is toxic and flammable. Avoid contact with skin and eyes. Use in well ventilated area and avoid breathing vapors. Wash hands thoroughly after each use. Close container after usage. Store in a cool, dry, and well ventiated area. Avoid contact with strong oxidizing agents. Protection: rubber gloves, chemical resistant goggles, and protective skin compound; respirator with organic vapor cartridge required in poorly ventilated areas.
		
2	Isopropyl Alcohol, TT-I-735	Isopropyl Alcohol, TT-I-735, is highly flammable. Do not use synthetic wiping cloths due to possible electrostatic discharge and ignition. Isopropyl alcohol is also toxic to the skin, eyes, and respiratory tract. Skin and eye protection are required. Avoid repeated or prolonged contact.
		
3	Adhesive, EA 9321	Adhesive, EA 9321, is toxic and flammable. Avoid contact with skin and eyes. Use in well ventilated area and avoid breathing vapors. Wash hands thoroughly after each use. Close container after usage. Store in a cool, dry, and well ventiated area. Avoid contact with strong oxidizing agents. Protection: rubber gloves, chemical resistant goggles, and protective skin compound; respirator with organic vapor cartridge required in poorly ventilated areas.
		
4	Adhesive, FM300	Adhesive Film, FM300, is toxic. Avoid prolonged or repeated skin contact. Avoid contact with eyes. Do not handle or store near heat, open flame, sparks, strong bases or strong acids. Store at or below 0°F to prolong shelf life. Wash hands thoroughly after each use. Protection: white cotton gloves worn over plastic gloves; use dust mask during grinding/cutting cured resin, half-mask respirator with organic vapor cartridge required in poorly ventilated areas.
		

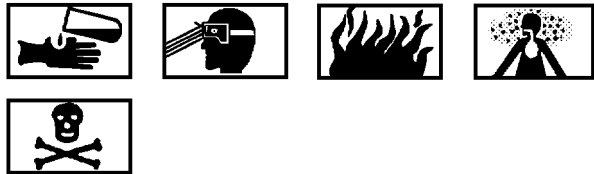



## HAZARDOUS MATERIALS WARNINGS (Continued)

<u>Index</u>	<u>Material</u>	<u>Warning</u>
5	Fluorocarbon Lubricant, MS-122	Fluorocarbon Lubricant, MS-122, is toxic and can release poison gas when heated. Excessive inhalation during normal use can cause dizziness, narcosis, and eye irritation. It can also contaminate smoking tobacco. Do not smoke tobacco exposed to the lubricant. Do not breathe vapors. Avoid contact with eyes and skin. Mild skin irritant. No smoking in area where fluorocarbon lubricant is used. Use in well ventilated areas. Protection: Chemical splash proof goggles, gloves and good ventilation. Ensure good personal hygiene prior to eating, drinking, or smoking.
	   	
6	Sealing Compound, MIL-S-83430	Sealing Compound, MIL-S-83430, is flammable and toxic to eyes, skin, and respiratory tract. Prolonged overexposure via inhalation may cause liver and/or kidney damage. Protection: Chemical splashproof goggles and solvent resistant gloves. Keep compound off skin and eyes. Keep away from open flames or other sources of ignition. Use only in well ventilated areas. Ensure good personal hygiene prior to eating, drinking, or smoking.
	   	
7	Adhesive Film, FM404	Adhesive Film, FM404, is toxic. Avoid prolonged or repeated skin contact. Avoid contact with eyes. Use in well ventilated area and avoid prolonged breathing of vapors. Wash hands thoroughly after each use. Protection: rubber gloves, chemical splashproof goggles, and protective skin compound; use dust mask during grinding, cutting, or sanding cured resin, half-mask respirator with organic vapor cartridge required in poorly ventilated areas.
	   	
8	Cleaning Compound, MIL-C-38736	Cleaning Compound, MIL-C-38736, irritates skin, nose, throat and respiratory tract. Avoid repeated/prolonged contact. Avoid heat, sparks, flames, and strong oxidizing agents. Keep away from open flames or other sources of ignition. Use only in well-ventilated areas. Protection: Full-face atmosphere supplying respirator, chemical resistant gloves and chemical goggles.
	     	













## HAZARDOUS MATERIALS WARNINGS (Continued)

<u>Index</u>	<u>Material</u>	<u>Warning</u>
9	Sealing Compound, MIL-S-8802	Sealing Compound, MIL-S-8802, is flammable and toxic to eyes, skin, and respiratory tract. Keep away from open flames or other sources of ignition. Prolonged breathing of vapors from organic solvents or materials containing organic solvents is dangerous. Rubber gloves shall be used. Use only in well-ventilated areas. Wash hands thoroughly with soap and water before eating, drinking, or smoking. Contains chromates; follow approved toxic waste disposal procedures.
	   	
10	Sealing Compound, MIL-S-81733	Sealing Compound, MIL-S-81733 is toxic. Prolonged breathing of vapors from organic solvents, or materials containing organic solvents, is dangerous. Rubber gloves shall be used. Wash hands thoroughly with soap and water before eating, drinking or smoking. Contains chromates; follow approved toxic waste disposal procedures.
	  	
11	Solder, Wire, Cerrobend	Solder Wire, Cerrobend, is toxic. Use in well ventilated area and avoid prolonged breathing of vapors. Wash hands thoroughly after each use. Protection: gloves, chemical splashproof goggles; use protective face shield when grinding, welding, brazing, or soldering in confined or poorly ventilated areas.
	  	
12	Adhesive Compound, EA-960	Adhesive Compound, EA-960, is composed of resins and hardens or curing agents that contain toxic ingredients that can cause irritation to eyes, skin or respiratory tract. If adhesive contacts eyes, flush immediately with large quantities of water and seek medical attention. If it contacts skin, wash thoroughly with soap and water. Prolonged or repeated contact may cause allergic reaction in susceptible persons. Use only with adequate ventilation. Wear approved protective gloves and safety glasses. Wash hands thoroughly after handling. Do not inhale vapors during curing. If spilled on clothing, wash clothes before wearing again. If spilled, completely clean up area of spillage. Incinerate properly in accordance with local regulations.
	  	













## HAZARDOUS MATERIALS WARNINGS (Continued)

<u>Index</u>	<u>Material</u>	<u>Warning</u>
13	Methyl Isobutyl Ketone (MIBK), TT-M-213	Methyl Isobutyl Ketone (MIBK), TT-M-213, is toxic, flammable, and irritating to eyes and skin. Overexposure may cause dizziness, narcosis, nausea and vomiting. Do not use in confined areas. Protection: Chemical splash proof goggles, gloves, and good ventilation. Keep container closed. Keep sparks, flames, and heat away. Keep MIBK off skin, eyes, and clothes. Do not breathe vapors. Use of respiratory protection may be required, depending on work task(s) and location. Ensure good personal hygiene prior to eating, drinking, or smoking.
		
14	Metal Cleaner, 222555	Metal Cleaner, 222555, is an extremely hazardous liquid. It can cause irritation of skin, eyes, nose, and throat. Avoid contact with skin and clothing. Wear rubber gloves, face shield, rubber apron, and respirator while handling. Always work in a well ventilated area. If solution contacts the skin or eyes, wash immediately with large quantities of water for 15 minutes or more, then secure first aid.
		
15	Corrosion Inhibiting Adhesive Primer, BR-127	Corrosion Inhibiting Adhesive Primer, BR-127, contains organic solvents that are flammable. Do not use on hot surfaces or near sources of ignition. Avoid skin contact and breathing of vapors. Use only with adequate ventilation. Prolonged or repeated breathing of vapors is dangerous. Respirators and goggles must be worn if primer is applied by spray or aerosol application. Prolonged or repeated skin contact can have a toxic effect on affected skin area. Protective gloves shall be worn when using or handling adhesive primer. Contains chromates. Follow approved toxic waste disposal procedures.
		
16	Bonding Primer, PR182	Bonding Primer, PR182, is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally adequate.
		

## HAZARDOUS MATERIALS WARNINGS (Continued)

<u>Index</u>	<u>Material</u>	<u>Warning</u>
17	Nitrogen, Liquid, BB-N-411, Type II	Liquid Nitrogen, BB-N-411, Type II, acts as a natural asphyxiant. Use in well ventilated spaces. Liquid nitrogen is extremely cold (-196_C). Avoid contact with. Wear protective clothing, goggles and heavy gloves. In case of frostbite from liquid nitrogen, wash area with cool water and seek medical attention.
	   	
18	Conversion Coating for Aluminum (Alodine), MIL-C-81706	Chemical Conversion Coating, MIL-C-81706, is highly reactive; do not mix with oxidizable materials such as cloth, paper, and wood. When mixing solutions, add acid to water, not water to acid. Contact with powder can cause severe skin and eye irritation and skin ulcers. Inhalation or ingestion can result in nasal and kidney damage. If any liquid or powder contacts skin or eyes, immediately flush affected area thoroughly with water. Immediately change any contaminated clothing. If skin disorders appear, get medical attention. When handling powder at air-exhausted workbench or tank, wear approved gloves and apron. When handling or when mixing it into solution at unexhausted workbench, wear approved respirator, gloves, and apron. Do not eat, smoke, or carry smoking materials in areas where powder is handled. Contains chromates. Follow approved toxic waste disposal procedures.
	 	
19	Adhesive, Liquid Shim, EA9317A/B	Liquid Shim Adhesive, EA9317A/B, is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally enough.
	   	
20	Petrolatum, Technical, VV-P-236	Technical Petrolatum, VV-P-236, is an eye irritant and upon exposure may cause skin irritation. May cause stomach/intestinal irritation upon ingestion. Avoid extreme heat and strong oxidizing agents. Protection: neoprene gloves and chemical goggles.
	 	

## HAZARDOUS MATERIALS WARNINGS (Continued)

<u>Index</u>	<u>Material</u>	<u>Warning</u>
21	Epoxy Primer, MIL-P-23377, Type 2, Class 1	Epoxy Primer, MIL-P-23377, Type 1 or Type II, is flammable -- do not use near open flames, welding areas or on hot surfaces. Do not eat, drink or smoke where primers are being mixed, handled or cleaned up. Prolonged breathing of vapors or spray mist is dangerous. Wear respiratory protection. Avoid prolonged skin contact. Contains chromates; follow approved toxic waste disposal procedures.
	  	
22	Coolant, Isopar M	Coolant, Isopar M, is toxic. Avoid prolonged skin contact. Avoid contact with eyes. If splashed into eyes, flush with clear water for 15 minutes or until irritation subsides. Use in well ventilated area and avoid prolonged breathing of vapors. Protection: rubber gloves, chemical splashproof goggles; use half-mask respirator with organic cartridge required in poorly ventilated areas. Use chemical resistant apron. Keep containers closed when not in use. Do not handle or store near heat, sparks, flame or strong oxidants. This liquid is volatile and gives off invisible vapors. Either the liquid or vapor may settle in low areas or travel to remote ignition sources.
	   	
23	Beryllium	Beryllium and its compounds are considered to be human and experimental carcinogens, tumorigens, and neoplastigens. Compounds may enter the body through inhalation of dust and fumes and may act locally on the skin. Even alloys of low beryllium content have shown to be dangerous. Inhalation of the dust can cause sever lung damage with symptoms appearing within months. Exposure may result in fibrosis. Beryllium and its compounds are on the Community Right to Know List. Respirator apparatus must be used when drilling, grinding, sanding or abrading beryllium alloys. Skin/eye protection are required. Avoid repeated/prolonged contact.
	    	



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ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

## TRAILING EDGE FLAP

TRAILING EDGE

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## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Ultrasonic Through Transmission Contact Testing, Standardization, Inspection Procedures for Composite Laminate Skins Bonded to Honeycomb Core .....	WP008 01
Trailing Edge Flap, Water in Honeycomb .....	WP013 00
Trailing Edge Flap, Skin to Core Unbonds and Delaminations .....	WP014 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Drilling and Machining Composites .....	WP004 08
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Material Preparation .....	WP003 00
Curing of Repairs .....	WP004 00
Water Removal .....	WP005 00
Graphite Epoxy and Titanium Foil Patch Fabrication .....	WP006 00
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Graphite Epoxy Skin, Class II Damage Repair .....	WP009 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class I Damage Repair .....	WP012 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class II Damage Repair .....	WP013 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class III Damage Repair .....	WP014 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class IV Damage Repair .....	WP015 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class V Damage Repair .....	WP016 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class VI Damage Repair .....	WP017 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class VII Damage Repair .....	WP018 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class IX Damage Repair .....	WP019 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class X Damage Repair .....	WP020 00
Graphite Epoxy Skin and Aluminum Honeycomb Core, Class XI Damage Repair .....	WP021 00
Use of Equipment History Record (EHR) Card .....	WP048 00

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## Record of Applicable Technical Directives

None

1. **DAMAGE EVALUATION.** See figure 1.

2. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Damage not listed or exceeding the following limits requires a depot engineering disposition.

3. **ALLOWABLE REPAIR WEIGHTS.** See figure

2. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on flap for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restrict future

repairs within this zone, proceed with repair and enter required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds within all other zones, except zone C, need not be recorded on EHR card.

a. Determine repair weight of previously installed class VII damage up to 1.5 inch diameter by selecting filler compound weight from table 5. Add weight of filler compound and patch weight selected from applicable table referenced in figure 2. The weight of one patch with bonding adhesive is listed in table 5; for a repair with two patches, multiply listed patch by two.

b. For repairs which overlap into more than one repair zone, select the zone that has the most restrictive criteria for repair; such as size of damage allowed, number of patches, and use of specific adhesive. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone, all of the repair weight should be added to that zone.

c. To determine actual weight of adhesive used for injection repair or used as a filler, load and weigh filler container, then weigh container after use and subtract this weight from loaded weight. This will be the actual adhesive or filler compound weight used to determine total repair weight that is entered on the EHR card. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

**4. NEGLIGIBLE DAMAGE.** See figures 2 and 3. Negligible damage may be allowed to exist as is. Type and limits are:

a. Delaminations between skin plies. See figure 3, section A. Determine size and location of delamination (A1-F18AC-SRM-300, WP014 00).

(1) Delaminations do not extend to edge of skin.

(2) Delaminations are more than 0.016 below skin surface.

(3) Diameter is 1/2 inch or less.

(4) Distance between delaminations is at least four times the diameter of largest delamination.

(5) No more than three delaminations are within a 12-inch diameter circle.

b. Unbonds between skin and honeycomb core. See figure 3, section B. Determine size and location of unbond (A1-F18AC-SRM-300, WP014 00).

(1) Unbonds do not extend to edge of skin.

(2) Diameter is 3/4 inch or less.

(3) Unbonds are separated by at least 4 inches, measured edge to edge.

(4) No more than three unbonds are in a 12-inch diameter circle.

c. Unbonds and/or voids between honeycomb core and spar or ribs. See figure 3, section C.

(1) Total length of all unbonds and/or voids does not exceed 2 inches in 20 inches.

(2) Diameter is 1/2 inch or less.

(3) Unbonds and/or voids do not exist between XW42.800 and XW60.000, and between XW96.000 and XW126.000.

d. Unbonds between skins and spar flanges. See figure 3, section D.

(1) Unbonds do not exist between XW42.800 and XW60.000, and XW96.000 and XW126.000.

(2) Unbonds not longer than 1 inch.

(3) Unbonds do not extend to edge of skin.

(4) Diameter is 1/2 inch or less.

(5) Unbonds are separated by at least 8 diameters of the largest unbond, measured edge to edge.

e. Dents. See figure 3, section A.

(1) Diameter is less than 3 inches.

(2) Depth is less than 0.015 inches.

**5. REPAIRABLE DAMAGE.** See figure 2 for repair zones and figure 4 for repairable damage. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of the aircraft. No repair weights are added for Class I, III, IV, V, VIII, IX, and X.

**6. Skin Surface Damage and Dents Without Honeycomb Core Damage, Class I Damage.** See figure 4, section A. This class of damage does not require immediate repair, but shall be repaired as soon as practical. The damage shall be monitored to make sure limits are not exceeded. Class I damage is:

a. Cuts, scratches, pits, erosion, or abrasions.

(1) Depth is no more than 0.005 inch.

(2) No longer than 5 inches.

b. Dents.

(1) Dent is not in depot disposition area, figure 2.

(2) Depth is no more than 0.05 inch.

(3) Skin delaminations and/or skin to core unbonds do not exceed negligible limits.

(4) Graphite fiber damage is no more than 0.005 inch deep.

(5) Diameter is less than 3 inches.

(6) Distance between dents is at least two times the diameter of the largest dent. Measure distance between dents edge to edge.

(7) No crushed core.

**7. Structure To Honeycomb Core Voids or Unbonds, Class II Damage.** See figure 4, section B. Class II damage is damage which exceeds negligible damage but does not exceed the limits listed below:

a. Inboard rib, outboard rib and forward spar to honeycomb core unbonds and/or voids. Determine size and location of unbonds (A1-F18AC-SRM-300, WP014 00).

(1) Unbonds are unlimited in size and number provided they are not in zone C.

(2) Determine weight of adhesive from table 6, add weight to total of all previous repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

**8. Skin Delaminations, Unbonds, or Skin to Core Unbonds Not Open to Edge, Class III Damage.** See figure 4, section C. No weight estimate is required for this repair. This is damage which does not exceed the limits listed below:

a. Unbonds between skin and core. Determine size and location of unbonds (A1-F18AC-SRM-300, WP014 00).

(1) No more than 3 inches in diameter.

(2) Distance between unbonds is at least four times the diameter of the largest unbond.

(3) Not open to edge of skin.

(4) Not in depot disposition area, figure 2.

b. Delaminations between skin plies or unbond between skin and rib. Determine size and location of delaminations (A1-F18AC-SRM-300, WP014 00).

(1) Not in core area.

(2) Not open to edge of skin.

(3) No more than 1 inch wide.

(4) No more than 4 inches long.

(5) Distance between delaminations is at least four times the length of the largest delamination.

(6) Not in depot disposition area, figure 2.

**9. Skin Delaminations or Unbonds Open to Edge, Class IV Damage.** See figure 4, section D. No weight estimate is required for this repair. Class IV damage is delaminations or unbonds open to the edge which do not exceed the limits listed below:

a. Skin to inboard and outboard rib or forward spar unbonds. Determine size and location of unbonds (A1-F18AC-SRM-300, WP014 00).

(1) Unbonds must not extend into honeycomb core.

(2) Unbond may be up to 2 inches or less in length or diameter.

(3) Distance between unbonds is 4 times the diameter of the largest unbond.

b. Delaminations between skin plies. Determine size and location of delaminations (A1-F18AC-SRM-300, WP014 00).

(1) Delaminations are limited to land areas where the skin is not bonded to core.

(2) Distance between delaminations is 4 times the diameter of the largest delamination.

(3) Delamination may be up to 2 inches or less in length or diameter.

c. Trailing edge skin to filler compound unbonds. Determine size and location of unbonds (A1-F18AC-SRM-300, WP014 00).

(1) Unbond is 1/2 inch or less in width.

(2) Unbond may be up to 4 inches or less in length.

(3) Distance between unbonds is at least 4 times the length of the largest unbond.

d. Delaminations between trailing edge skin plies. Determine size and location of delaminations (A1-F18AC-SRM-300, WP014 00).

(1) Delaminations are 1/2 inch or less in width.

(2) Delaminations are 4 inches or less in length.

(3) Distance between delaminations is at least 4 times the length of the largest delamination.

**10. Fiber Damage Around Fastener Holes and Surface Rips, Class V Damage.** See figure 4, section E. No weight estimate is required for this repair. Class V damage is damage which does not exceed the limits listed below:

a. Loose, broken or missing graphite fibers and/or skin abrasion around fastener holes and/or countersinks.

(1) No deeper than 0.010 inch.

(2) No wider than 0.25 inch.

(3) No longer than 0.50 inch.

**11. Skin Damage Without Penetration, Class VI Damage.** See figure 4, section F. Class VI damage is damage which does not exceed the limits listed below:

a. Cracks, delaminations, cuts, scratches, or erosion. Determine size and location of delaminations (A1-F18AC-SRM-300, WP014 00).

(1) Damage is not in depot disposition area, figure 2.

(2) Depth that is more than 0.005 inch, but less than full skin penetration.

(3) Surface indentation up to 0.05 inch is allowed.

(4) No core damage allowed.

(5) Distance between damages is at least 4 times the diameter of the largest damage. Measure distance between damage edge to edge.

(6) Add patch weight selected from applicable table referenced in figure 2 to total of all previous repairs within affected zone. If new total repair weights exceed limits in figure 2, a depot engineering disposition is required.

**12. Skin Damage With Penetration and Dents With Honeycomb Core Damage, Class VII Damage.** See figure 4, section G. This damage in-

cludes full penetration of one or both skins with core damage and with related skin ply delaminations and/or skin to core unbonds around the periphery or the open hole; also dents to the skin with core damage. This damage must not exceed the limits listed below:

a. For damage trim-out diameter less than 1.5 inches, determine weight of filler compound from table 5. Add weight of filler compound and patch weight(s) (1 or 2 patches as required) from applicable table referenced in figure 2 to total of all previous repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

b. For damage trim-out diameter more than 1.5 inches, determine weight of repair from applicable table referenced in figure 2 and add it to total of all previous repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

c. Damage is not in zone C, figure 2.

d. Distance between damages is at least 4 times the diameter of the largest damage. Measure distance between damages edge to edge.

e. For dents, the maximum size cutout diameter allowed for each zone is listed in figure 2. If the damage trim-out diameter will exceed the maximum size cutout diameter, a depot engineering disposition is required. Dents as described below are Class VII type damage:

(1) Diameter is more than 3 inches.

(2) Depth is more than 0.05 inches.

(3) With crushed core.

**13. Water in Honeycomb Core, Class VIII Damage.** Inspect for water in honeycomb core (A1-F18AC-SRM-300, WP013 00). Class VIII damage is water trapped in honeycomb core.

**14. Edge Damage, Class IX Damage.** See figure 4, section H. No weight estimate is required for this repair. Class IX damage is damage which does not exceed the limits listed below:

a. Skin damage.

(1) Closure rib and/or skin damage.

(2) Depth of damage is no more than 0.20 inches.

(3) Length of damage is no more than 4.00 inches.

**15. Trailing Edge Damage Without Honeycomb Core Damage, Class X Damage.** See figure 4, section J. No weight estimate is required for this repair. Class X damage is damage which does not exceed the limits below:

a. Skin and filled honeycomb core.

(1) Damage does not extend more than 0.50 inch forward of the trailing edge, unlimited in length.

(2) Damage may extend into filled honeycomb core.

(3) No damage is allowed to unfilled honeycomb core.

**16. Trailing Edge Damage With Honeycomb Core Damage, Class XI Damage.** See figure 4, section K. Class XI damage is damage which does not exceed the limits below:

a. Add weight shown in figure 1, section K, to total of all previous repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

b. Skin and filled and/or unfilled honeycomb core.

(1) Damage does not extend more than 4.25 inches forward of the trailing edge.

**17. Closure Rib and Skin Damage.** See figure 5, section A. No weight estimate is required for this repair. Damage to closure rib does not exceed the limits below:

a. Depth of damage is no more than 0.25 inches.

b. Length is unlimited.

## **18. REPAIRS.**

19. Classes I, II, III, IV, V, VI, VIII, IX, X, and XI are organizational maintenance. Class VII 1.5 inches in diameter or less is organizational maintenance, over 1.5 inches in diameter is intermediate maintenance. Repair damages by procedures referenced below:

a. Repair class I damage (A1-F18AC-SRM-250, WP012 00).

b. Determine class II repair weight from table 6. Repair class II damage (A1-F18AC-SRM-250, WP013 00).

c. Repair class III damage (A1-F18AC-SRM-250, WP014 00).

d. Repair class IV damage (A1-F18AC-SRM-250, WP015 00).

e. Repair class V damage (A1-F18AC-SRM-250, WP016 00).

f. Select table to determine patch and repair weight for Class VI damage per figure 2. Repair Class VI damage (A1-F18AC-SRM-250, WP017 00).

g. Select table to determine repair weight for Class VII damage per figure 2. Repair Class VII damage (A1-F18AC-SRM-250, WP018 00).

h. Repair class VIII damage (A1-F18AC-SRM-250, WP005 00).

i. Repair class IX damage (A1-F18AC-SRM-250, WP019 00).

j. Repair class X damage (A1-F18AC-SRM-250, WP020 00).

k. Determine repair weight for Class XI damage per figure 4, view K. Repair class XI damage (A1-F18AC-SRM-250, WP021 00).

**20. CLOSURE RIB AND SKIN DAMAGE AND REPAIR.** See figure 5, section B. No weight estimate is required for this repair. Repair closure rib as below:

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA956
Cheesecloth	CCC-C-440, Type 1, Class 1
Paper, Abrasive	A-A-1047, Grit 180-9 X 11 240-9 X 11

### WARNING

Sanding of graphite epoxy material produces a fine dust that may cause skin irritation. Breathing of an excessive amount of dust may be injurious.

Use caution in the disposal of fibrous graphite and graphite epoxy scrap. Graphite fibers have high electrical conductivity. Free floating fibers that get inside unsealed or unprotected electrical equipment can cause failure or malfunction.

### NOTE

Nonfibrous dust, caused by sanding of graphite epoxy material, is not a danger to electrical equipment and may be disposed of the same way as any waste.

(a) Remove loose or protruding fibers. Smooth sharp edges to a 0.50 minimum radius using 180 grit abrasive paper. Complete surface preparation using 240 grit abrasive paper.

(b) Clean damage area by wiping with clean, dry cheesecloth.

(c) Do NDI to make sure damage is removed (A1-F18AC-SRM-300, WP014 00).



Adhesive

1

(d) After damage is removed, prepare EA956 adhesive (A1-F18AC-SRM-200, WP011 00).

(e) Apply adhesive to edge of repair. Cure adhesive (A1-F18AC-SRM-250, WP004 00).

(f) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**21. TRIMMING, 74A180003, TRAILING EDGE FLAP.** See figure 6. Procedures below are for eliminating contact between inboard edge of aileron and outboard edge of flap.

a. Score a line from the leading edge to the trailing edge on the flap as dimensioned per figure 6, sections A and B.

b. Trim flap outboard of line scored in step a per (A1-F18AC-SRM-200, WP004 08) Trimming, Graphite Epoxy Laminate.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**22. TRAILING EDGE FLAP DAMAGE REPAIRS.** The procedures below are for skin, core, and structure damage repair. Repairs are intermediate level maintenance.

**23. Surface Damage.**

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Air Regulator Assembly, with Oil-Water Separator and Gage	538A
Sealant Gun	Number 250

### Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Adhesive	EA956
Cheesecloth	CCC-C-440, Type 1, Class 1
Isopropyl Alcohol	TT-I-735, Grade 1

## Materials Required (Continued)

Nomenclature	Specification or Part Number
Paper, Abrasive	A-A-1047, Grit 180-9X12 240-9X11
Sealant Gun Nozzle	420
Tape, Pressure Sensitive	855-1.000

a. Repair any delaminated area per steps below:

(1) Tape the separated edges of damaged area, keeping a small opening at each end.



Adhesive

1

(2) Prepare EA956 adhesive (A1-F18AC-SRM-200, WP011 00).

(3) Attach a regulated source of compressed air to sealant gun. Set air regulator for 40 psi and inject adhesive, using sealant gun and nozzle, into one opening until adhesive flows clear from other opening.

(4) Wipe off excess adhesive with clean dry cheesecloth.

(5) Cover both openings with tape.

(6) Apply pressure to repair, using weights or C-clamp and backup plates as required to get approximately 5 pounds per square inch of repair area.

(7) Cure adhesive (A1-F18AC-SRM-250, WP004 00).

(8) Remove weights or C-clamps, backup plates and tape.



Be careful not to sand into laminates. Sanding into surface of material will cause damage.

(9) Sand the area smooth using 240 grit abrasive paper.

b. Repair any missing plies, fibers, or skin abrasions per steps below:

(1) Add patch weight from applicable table referenced in figure 2 to total of all previous repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

## WARNING

Wear face protection, apron, and gloves when sanding graphite epoxy. Sanding produces a fine dust that may cause skin irritation. Breathing an excessive amount of dust may be injurious.



Graphite fibers have high electrical conductivity. Free floating fibers that get inside unsealed or unprotected electrical equipment can cause failure or malfunction.

Be careful not to sand into laminates, causing damage.

## NOTE

Nonfibrous dust caused by sanding graphite epoxy, is not considered a danger to electrical equipment and may be disposed of the same way as any waste.

(2) Lightly sand damage area smooth using 320 grit abrasive paper.



Isopropyl Alcohol

2

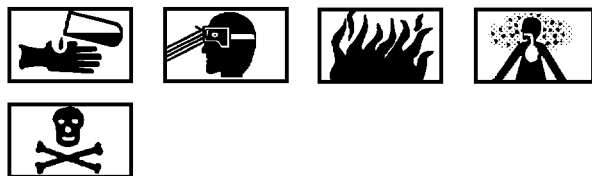


To avoid contamination, always pour isopropyl alcohol onto clean cheesecloth. Never dip cheesecloth into isopropyl alcohol.

(3) Clean damage by wiping with clean cheesecloth moistened with isopropyl alcohol.

(4) Wipe dry with clean dry cheesecloth.





Adhesive

3

(5) Prepare EA9321A/B adhesive (A1-F18AC-SRM-200, WP011 00).



Be careful when applying adhesive around fasteners not to get adhesive on the fasteners.

(6) Fill damage with adhesive, flush with mold line.

(7) Cure EA9321A/B adhesive (A1-F18AC-SRM-250, WP004 00).



Be careful not to sand into laminates. Sanding into surface of material will cause damage.

(8) Lightly sand area smooth using abrasive paper.

c. Select patch from applicable table referenced in figure 2. Make sure patch has 1.25 inch overlap.

d. Install patch using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00).

e. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

**24. Upper or Lower Skin Delaminations at Outboard Rib.** See figure 7. Add repair weight shown in figure to total of all repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
Paper, Abrasive	A-A-1047, Grit 240-9 X 11
Adhesive	EA9321A/B

a. Repair any edge delaminations (A1-F18AC-SRM-250, WP009 00).

b. Sand delaminated skin areas to a depth of 0.020, using abrasive paper, view B.

c. Do NDI to determine that all delaminations have been removed (A1-F18AC-SRM-300, WP014 00).

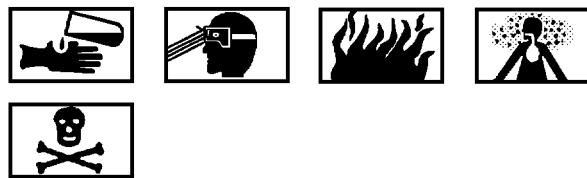
d. Repeat steps b and c until delaminations have been removed, or until honeycomb core and outboard rib have been exposed.

e. Select patch to fill sanded area (A1-F18AC-SRM-250, WP006 00). Some sanding of the patch may be required to match thickness of sanded area.

### NOTE

Be sure both surfaces of filler patch have been sanded before bonding.

f. Select patch to cover sanded area and filler patch (A1-F18AC-SRM-250, WP006 00). Make sure patch has a 1.50 inch overlap for bond line, view B.



Adhesive

3

g. Install filler patch and external patch simultaneously using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00).

h. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

**25. Outboard Rib Repairs.** See figure 8. Two types of repairs are given below: Rib replacement with skin and core repair; and corner replacement with rib, skin, and core replacement. Add repair weight shown in figure to total of all repairs within affected

zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

26. **Rib Replacement.** See Figure 8, view B for maximum allowable damage and repair weight.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
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Vacuum Source	-
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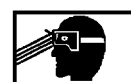
### Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Adhesive	EA956
Adhesive	FM300
Cloth, Graphite Epoxy, Dry Woven	W133, Type 1
Cloth, Satin, Breather	MIL-C-9084 Type 8, Class 2
Cloth, Scrim, Nylon	Pattern 30
Cloth, Teflon	TEMP-R-GLAS 6TB
Film, Mylar, Polyester	0.142 Gage, Mylar-Type A
Film, Nylon, 2 Mils Thick	WRIGHTLON 7400
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Honeycomb Core Kit	135001-1001, -1002, -1005, -1007, -1009, or -1011, 1/8-inch cell, 0.002 Inch Thick Foil
or	or
Aluminum Alloy	74K000005
Honeycomb Plug	
Repair Kit	
Lubricant, Fluorocarbon	MS-122
Paper, Abrasive	A-A-1047, Grit 180-9X12 240-9X11
Plaster, Gypsum	Hydrocal B-11
Plastic Sheet	200SG40TR
Plastic Sheet	MIL-P-18177, Type GEE0
Tape, Vacuum Bag Sealant	9151-1-500

a. Fabricate repair rib, Figure 8, view A.

(1) Get a spare undamaged trailing edge flap same as damaged flap, to be used to form a casting to mold a repair rib. Make sure spare flap closure rib measures at

least 1/8-inch in depth longer, from the outboard flange edges to the inboard web of the rib, than the rib to be repaired.



Fluorocarbon Lubricant

5

(2) Apply fluorocarbon lubricant agent to spare flap closure rib.

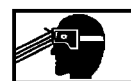
### NOTE

Be sure the casting can be removed before curing plaster.

(3) Fill the rib with plaster and cure 12 hours at 125°F.

(4) Remove casting from rib. Sand smooth, seal, and dry thoroughly.

(5) Apply fluorocarbon lubricant to dried casting.



Adhesive

1

(6) Place a ply of graphite epoxy cloth on a layer of plastic sheet. Saturate the ply with EA956 adhesive.

(7) Place another layer of plastic sheet over the ply and roll the sheets to work adhesive into the graphite epoxy cloth.

(8) Cut three plies from the saturated cloth large enough to form around the repair rib casting with weave orientation per view A.

(9) Apply EA956 adhesive to forming surface of casting. Remove one layer of plastic sheet from the inner ply and form the ply around the casting, removing all entrapped air.

(10) Remove second layer of plastic sheet from formed ply.

(11) Install middle and outer plies same method as inner ply.

(12) Cover plies and casting with plastic sheet, followed by one layer of breather cloth.

(13) Install a vacuum source line and a vacuum gage line. Cover vacuum lines with a second layer of breather cloth. Connect the vacuum lines.

(14) Wrap a sheet of nylon film around the whole repair rib/vacuum bag assembly. Seal all open edges of nylon film with vacuum bag sealant tape.

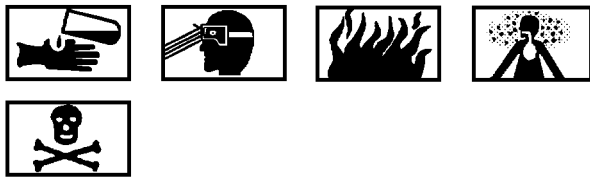
(15) Cure repaired assembly at 24 to 29 inches of mercury at 190°F for 1 hour.

(16) Remove vacuum bag assembly. Remove cured repair rib from casting. Retain casting for later use.

b. Remove any unbonded skin to core damage, view B.

c. Trim damaged flange or closure rib to a smooth shape, view B.

d. Remove any crushed or damaged honeycomb core. Remove enough unbonded skin and crushed core in a semi-elliptical pattern to expose the bond line between the core and closure rib, view C.



Adhesive

3

e. Install replacement core plug with EA9321A/B adhesive (A1-F18AC-SRM-250, WP018 00). Cure adhesive at room temperature for 4 hours, view D.

f. After cure, sand replacement core flush with mold line. Clean up excess adhesive.

g. Fabricate filler patches to cutout areas of skin and closure rib (A1-F18AC-SRM-250, WP006 00).

h. Select patches for upper and lower skins (A1-F18AC-SRM-250, WP006 00). Make sure patches have a 1.5 inch overlap for bond line, views F and G.

i. Cut repair rib to fit in existing rib at flange cutout. Make sure there is at least 1.0 inch overlap of trimmed flange at both ends of repair rib.

j. Apply fluorocarbon lubricant to repair rib casting and place repair rib on casting.

k. Prepare bonding surfaces of repair rib by sanding and cleaning.

l. Assemble repair rib, filler patches, and upper and lower patches using EA9321A/B adhesive with scrim cloth between all graphite epoxy parts, and between the patches and honeycomb core, views E, F, and G.

m. Cure assembled repair at room temperature for 2 hours, followed by 190 ± 10°F for 1 hour (A1-F18AC-SRM-250, WP007 00).

n. After cure, sand upper and lower patches to fair into mold line.

o. Trim outboard edge of repair assembly to match existing edge.

p. Do NDI to determine bond line integrity (A1-F18AC-SRM-300, WP008 01).

q. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

27. Corner Replacement. See Figure 8, view H for maximum allowable damage and repair weight.

a. Remove damaged skin, rib, and core. Cutout only enough to remove damage to maximum dimensions per view H.

b. Do NDI for water entrapment (A1-F18AC-SRM-300, WP013 00).

#### NOTE

Monitor drying closely to avoid damage to skin or honeycomb core.

c. Dry damaged area, Water Removal (A1-F18AC-SRM-250, WP005 00).

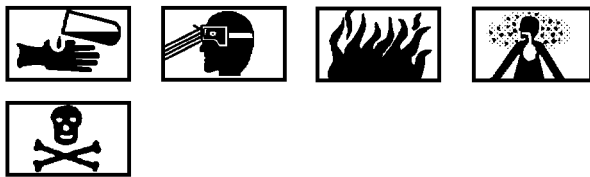
d. Repair any remaining delaminations (A1-F18AC-SRM-250, WP015 00).

e. Remove surface finish three inches around cut-out on upper and lower skins using 180 and 240 grit abrasive paper, being careful not to sand into the carbon fibers.

f. Get replacement closure rib, 74A180613. For material (WP008 00).

g. Fabricate upper and lower shims same thickness as skin (WP008 00).

h. Fabricate arrowhead from plastic sheet to fit into aft end of replacement rib, view W.



Adhesive

4

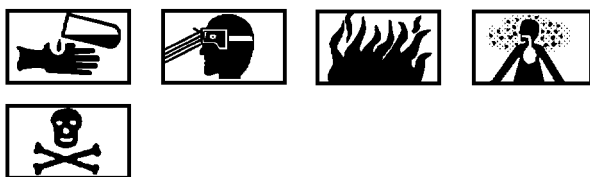
i. Install shims and arrowhead on replacement rib using FM300 adhesive (A1-F18AC-SRM-250, WP007 00), view J and K.

j. Fabricate aluminum plate to protect the existing core during cure, view L. Plate can be above upper mold line, but not below, and shall meet lower mold line.

k. Insert wooden plug coated with vacuum bag sealant into forward end of undamaged rib to form a complete seal for the vacuum bag, view L.

l. Cover the aluminum plate with plastic sheet.

m. Select lower patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).



Adhesive

3

n. Install lower patch using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00), view L, M, and N. Make sure patch has 1.5 inch minimum overlap onto parent skin.

o. Bond replacement rib with upper and lower shims to lower patch using FM300 adhesive. Locate in

position using a temporary alignment angle and C-clamps, view P, R, and S. Make sure lower patch and replacement rib maintain mold line location.

p. Fabricate and install lower trailing edge shim to fit cutout, view P. Bond in place using FM300 (A1-F18AC-SRM-250, WP007 00).

q. Get replacement honeycomb core and trim to fit cutout area, view T.

r. Install replacement core with three layers of FM300 adhesive positioned between lower patch and core. Cure adhesive (A1-F18AC-SRM-250, WP007 00).

s. Apply EA9321A/B adhesive around perimeter of replacement core to bond core-to-core. Fill gap from lower patch up to top of core.

t. Cure adhesive at room temperature for 2 hours followed by  $190^{\circ} \pm 10^{\circ}\text{F}$  for 1 hour. Add excess adhesive to allow for shrinkage.

u. Fabricate and install upper trailing edge shim to fit cutout, view T. Shim to match upper mold line. Fill gap between upper and lower shims with layers of staged FM300 adhesive as required.

v. Verify core to mold line match-up.

w. Select upper patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

x. Install upper patch using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00). Make sure patch has 1.5 inch minimum overlap onto parent skin. Use wooden block with rubber pad during vacuum to prevent rib damage, view U.

y. Fabricate and bond splice channel to existing rib and replacement rib using EA9321A/B adhesive and scrim cloth, view V (A1-F18AC-SRM-250, WP004 00).

z. Trim outboard edge of replacement rib, shims, and splice channel to match flap edge (A1-F18AC-SRM-200, WP004 08)

aa. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

28. Inboard Aft Corner Repair. See figure 9. Repair weight is shown in figure.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Router, Dotco	10L2582C-01
Router Holder, Adjustable	IED84-232

## Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Adhesive	EA956
Adhesive	FM300
Cloth, Graphite Epoxy, Dry Woven	W133, Type 1
Cloth, Satin, Bleeder	MIL-C-9084 Type 3, Class 2
Cloth, Satin, Breather	MIL-C-9084 Type 8, Class 2
Cloth, Scrim	Style 1620
Cloth, Teflon	TEMP-R-GLAS 3TLL
Cloth, Teflon	TEMP-R-GLAS 6TB
Film, Mylar, Polyester	0.142 Gage, Mylar-Type A
Honeycomb Core Kit	135001-1001, -1002, -1005, -1007, -1009, or -1011, 1/8-inch cell, 0.002 Inch Thick Foil
or	or
Aluminum Alloy	74K000005
Honeycomb Plug Repair Kit	
Microballoons, Phenolic	BJO-0930
Paper, Abrasive	A-A-1047, Grit 180-9X12 240-9X11
Sealing Compound	MIL-S-83430, Class B-4
Tape, Pressure Sensitive	855-1.000

a. Do NDI to determine amount of damage (A1-F18AC-SRM-300, WP014 00).

b. Cut out damaged area (A1-F18AC-SRM-200, WP004 08). Do not remove any more material than required to remove damage up to maximum dimensions, view A.

c. Dry the cutout area per Drying Sandwich Structure (A1-F18AC-SRM-250, WP007 00).

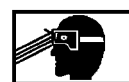
d. Select upper mold line patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006

00). Make sure patch has a 2.0 inch overlap onto parent skin, see view C.

e. Sand a taper at the forward and outboard edges of the patch that will be bonded to the upper mold line, view C. Clean patch with clean, dry cheesecloth.

f. Get replacement honeycomb core and trim to fit cutout area, view B. Maintain original core ribbon direction.

g. Sand bonding surface of upper mold line patch with 180, then 240, grit abrasive paper. Wipe clean with clean, dry cheesecloth.



Adhesive

4

h. Bond upper mold line patch to replacement core using two layers of FM300 adhesive, view C:

(1) Place plastic sheet on both sides of core/patch assembly.

(2) Place 1/4-inch aluminum caul plate on both sides of core/patch assembly.

(3) Place weights on assembly to distribute four to five pounds per square inch over the core to patch bond line.

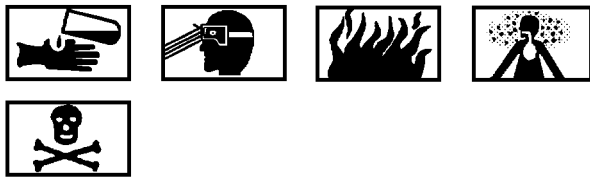
(4) Place weighted assembly in oven at 350° ± 10°F for 60 to 70 minutes.

(5) After cure, do NDI to verify bond line integrity (A1-F18AC-SRM-300, WP008 01).

i. Fabricate lower mold line patch per steps below:

(1) Get an undamaged trailing edge flap same as damaged flap to be used to form the lower mold line patch.

(2) Tape a layer of TEMP-R-GLAS 6TB teflon cloth over the area that the patch is to cover.



Adhesive

1

(3) Prepare EA956 adhesive (A1-F18AC-SRM-200, WP011 00).

(4) Place a layer of dry graphite epoxy cloth on a sheet of mylar film. Graphite epoxy cloth shall be large enough to cut three patch plies from.

(5) Saturate graphite epoxy cloth with EA956 adhesive.

(6) Place a second layer of mylar film over the saturated cloth. Roll cloth between the mylar sheets to work adhesive into the cloth.

(7) Cut three patch plies from cloth/film sandwich. Be sure plies are large enough for a 2.0 inch overlap beyond cutout area onto parent skin. Cut inner, middle, and outer plies to get correct ply weave orientation, views D and E.

(8) Apply EA956 adhesive to TEMP-R-GLAS 6TB teflon cloth taped to flap.

(9) Remove one layer of mylar film from inner ply and place it on the TEMP-R-GLAS 6TB teflon cloth, at correct orientation, view D. Remove any entrapped air bubbles. Remove second layer of mylar film.

(10) Repeat previous step for middle, then outer plies.

(11) Cover plies with one layer of TEMP-R-GLAS 3TLL teflon cloth, followed by one layer of bleeder cloth.

(12) Place sheet of TEMP-R-GLAS 6TB teflon cloth over whole patch assembly.

(13) Perforate TEMP-R-GLAS 6TB teflon cloth in center.

(14) Place two layers of breather cloth over TEMP-R-GLAS 6TB teflon cloth.

j. Tape an aluminum caul plate to the upper mold line of the undamaged flap so that it extends past the aft and inboard sides of flap, view D.

k. Locate the patch layup 1.5 inches past the aft and inboard edges of the flap on the caul plate, view D.

l. Place vacuum bag over whole patch layup and caul plate.

m. Cure with heat blanket/vacuum bag at 250°F (A1-F18AC-SRM-250, WP004 00).

n. After cure, remove patch from flap and trim to match aft and inboard mold line. Trim forward and outboard to a minimum of 2.0 inch overlap onto parent skin.

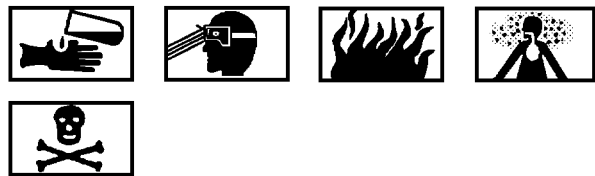
o. Sand forward and outboard edges of patch to fair into mold line, view K.

p. Contour the lower mold line of the replacement core to match lower mold line of flap, view F. Use router and 180 to 240 grit abrasive paper. Trim core at aft and inboard ends to replacement core dimensions, view B.

q. Sand aft and inboard edges of upper mold line patch, and any glossy surfaces of FM300 adhesive exposed after trimming core, with 180 to 240 grit abrasive paper.

r. Scuff sand upper skin and patch to prepare for bonding using 180 and 240 grit abrasive paper. Wipe with clean, dry cheesecloth.

s. Bond upper patch/replacement core to upper mold line, view G:



Adhesive

3

(1) Prepare EA9321A/B adhesive (A1-F18AC-SRM-200, WP011 00).

(2) Apply EA9321A/B adhesive to both bonding surfaces.

(3) Press a layer of scrim cloth into adhesive on flap skin.

(4) Lightly press patch/core assembly onto the flap at correct location.

(5) Place vacuum bag around whole patch/core assembly, view G.

(6) Cure adhesive (A1-F18AC-SRM-250, WP004 00).

t. After cure, smooth surfaces of skin and patch using 240 grit abrasive paper. Wipe with clean, dry cheesecloth.

u. Do NDI to determine bond line integrity (A1-F18AC-SRM-300, WP008 01).

v. Place a layer of TEMP-R-GLAS 6TB teflon cloth on the inner surface of the lower mold line patch, view H.

w. Prepare EA956 adhesive by thoroughly mixing EA956 part A 88 parts by weight, EA956 part B 52 parts by weight, microballoons 14 parts by weight, and chopped fiberglass 16 parts by weight.

x. Apply EA956 adhesive mixture to bonding surface of replacement core. Fill gaps at inboard and aft edges of core.

y. Immediately install lower mold line patch with TEMP-R-GLAS 6TB teflon cloth in place on flap, view H.

z. Secure in place with tape and C-clamps per view J.

aa. Turn flap so that lower mold line patch is down and adhesive mixture will settle into the gap between the core and patch.

ab. Cure EA956 adhesive (A1-F18AC-SRM-250, WP004 00).

ac. Remove lower mold line patch. Clean up adhesive squeeze out.

ad. Remove TEMP-R-GLAS 6TB teflon cloth from lower mold line patch.

ae. Prepare bonding surfaces of patch and cured adhesive mixture using 180 to 240 grit abrasive paper. Clean with clean, dry cheesecloth.

#### NOTE

If surface cavities greater than 0.050 deep exist in cured adhesive mixture, fill with more EA956 adhesive mixture and cure.

af. Apply EA9321A/B to bonding surfaces of patch, cured adhesive mixture, and flap (A1-F18AC-SRM-200, WP011 00).

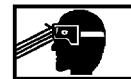
ag. Place a layer of scrim cloth into the adhesive on the flap.

ah. Install patch on flap and tape in place, view K.

ai. Cure EA9321A/B adhesive (A1-F18AC-SRM-250, WP004 00).

aj. After cure, smooth patch with 240 grit abrasive paper. Clean with clean, dry cheesecloth.

ak. Do NDI to determine bond line integrity (A1-F18AC-SRM-300, WP008 01).



Sealing Compound

6

al. Apply sealing compound to inboard and aft edges of patch assembly (A1-F18AC-SRM-200, WP011 00).

am. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

**29. Outboard Trailing Edge Damage Repair.** See figure 10. The repair zone for these procedures is limited to 3 inches inboard and outboard of the XW134.00 station, and fifteen inches forward from the trailing edge. Three types of damage are repaired: skin only damage; single skin and core damage; and double skin and core damage. See Repair Weight Chart on figure to determine approximate weight of each repair.

#### Support Equipment Required

None

## Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Adhesive	FM300
Adhesive Film	FM404
Honeycomb Core Kit	135001-1001, -1003,-1005, -1007,-1009, or -1011 1/8-inch cell, 0.002 Inch Thick Foil or
Aluminum Alloy	74K000005
Honeycomb Plug Repair Kit	A-A-1047, GRIT 180-9 X 11 240-9 X 11
Paper, Abrasive	200SG40TR
Plastic Sheet	

## 30. Double Skin and Core Damage.

a. Remove damaged skins and core. Cut out only enough to remove damage, no more than maximum dimensions, view A.

b. Repair any delaminations at cutout area (A1-F18AC-SRM-250, WP015 00).

c. Remove surface finish 3 inches around cutout on upper and lower skins using 180 and 240 grit abrasive paper, being careful not to sand into the carbon fibers.

d. Get replacement honeycomb core and trim to fit cutout area, view B. Leave approximately 0.10 inch of core past mold line.



Adhesive Film

7

e. Get a sheet of adhesive film.

f. Remove one layer of release paper from adhesive.

g. Apply one layer of adhesive film to the replacement core (with release paper on outside). By hand, press adhesive film into outer core cell walls of replacement core.

h. Remove remaining release paper.

i. Repeat steps e thru h, but apply adhesive film to existing core in cutout area.

j. Carefully insert the replacement core and adhesive film into the cutout while maintaining correct core direction.

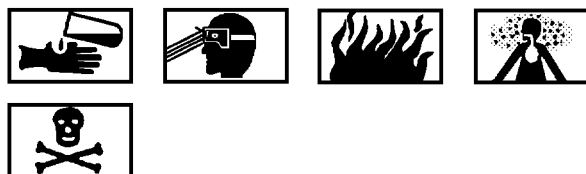
## NOTE

FM404 adhesive film will expand during cure to fill void areas.

k. Visually inspect to verify that adhesive film was not wiped off core walls.

l. Cure adhesive film using heat blanket layup on both sides of flap (A1-F18AC-SRM-250, WP004 00).

m. Trim replacement core to mold line, both upper and lower surfaces.



Adhesive

4

n. Fabricate and install trailing edge flap shims to fit cutout, view B. Shims are to match upper and lower mold line. Fill gap between shims with layers of staged FM300 adhesive as required.

o. Select upper and lower patches per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

p. Trim patches to cutout dimensions with a 2.0 inch overlap, view B.

q. Sand a tapered edge on both patches, view D.

r. Install upper and lower patches to replacement core using two layers of FM300 adhesive, view C per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00).

s. After cure, do NDI to verify bond line integrity (A1-F18AC-SRM-300, WP008 01).

t. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

## 31. Single Skin and Core Repair.

a. Remove damaged skin and core. Cut out only enough to remove damage, no more than maximum dimensions, view E.



b. Repair any delaminations at cutout area (A1-F18AC-SRM-250, WP015 00).

c. Remove surface finish 3 inches around cutout on skin using 180 and 240 grit abrasive paper, being careful not to sand into the carbon fibers.

d. Get replacement honeycomb core and trim to fit cutout area, view F. Leave approximately 0.10 inch of core past mold line.



Adhesive Film

7

e. Get a sheet of adhesive film.

f. Remove one layer of release paper from adhesive.

g. Apply one layer of adhesive film to the replacement core (with release paper on outside). By hand, press adhesive film into outer core cell walls of replacement core.

h. Remove remaining release paper.

i. Repeat steps e thru h, but apply adhesive film to existing core in cutout area.

j. Bond replacement core to existing skin using EA9321A/B adhesive (A1-F18AC-SRM-200, WP011 00).

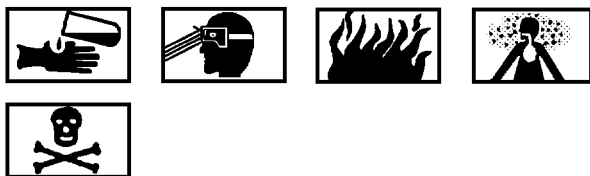
#### NOTE

FM404 adhesive film will expand during cure to fill void areas.

k. Visually inspect to verify that adhesive film was not wiped off core walls.

l. Cure adhesive film using heat blanket lay up on both sides of flap.

m. Trim replacement core to mold line surface.



Adhesive

4

n. Fabricate and install trailing edge shim to fit cutout, view F. Shim is to match mold line. Fill gap

between shims with layers of staged FM300 adhesive as required.

o. Select patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

p. Trim patch to cutout dimensions with a 2.0 inch overlap, view F.

q. Sand a tapered edge on patch, view G.

r. Install patch to replacement core using one layer of FM300 adhesive, view C per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00).

s. After cure, do NDI to verify bond line integrity (A1-F18AC-SRM-300, WP008 01).

t. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

#### 32. Skin Only Damage.

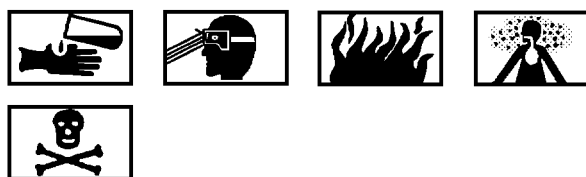
a. Remove damaged skin only. Cut out only enough to remove damage, no more than maximum dimensions, view H.

b. Repair any delaminations at cutout area (A1-F18AC-SRM-250, WP015 00).

c. Remove surface finish 3 inches around cutout on skin using 180 and 240 grit abrasive paper, being careful not to sand into carbon fibers.

d. Select filler patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

e. Trim filler patch to fit cutout, view J.



Adhesive

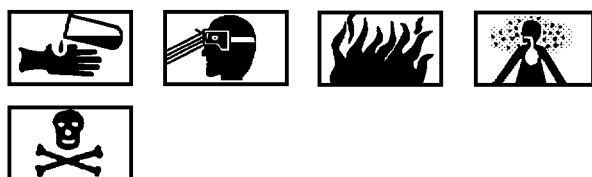
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f. Install filler patch to existing core using one layer of FM300 adhesive, view J per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00).

g. After cure, do NDI to verify bond integrity (A1-F18AC-SRM-300, WP008 01).

h. Sand filler patch smooth and even with mold line using 180 and 240 grit abrasive paper, view K.

i. Inspect filler patch for dents or surface below mold line.



Adhesive

3

j. If low surface exists on filler patch, fill low surface area with EA9321A/B adhesive:

(1) Wipe area with dry cheesecloth.

(2) Prepare EA9321A/B adhesive (A1-F18AC-SRM-250, WP003 00).

(3) Fill dent with EA9321A/B adhesive using a spatula. Trowel level with mold line.

(4) Cover with plastic sheet and smooth out wrinkles.

(5) Cure adhesive (A1-F18AC-SRM-250, WP004 00).

(6) After cure, sand smooth and flush with mold line using 240 grit abrasive paper.

k. Select external patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

l. Trim external patch to cutout dimensions with a 2.0 inch overlap, view J.

m. Sand a tapered edge on patch, view K.

n. Repeat step f to bond external patch to filler patch and assembly.

o. After cure, do NDI to verify bond line integrity (A1-F18AC-SRM-300, WP008 01).

p. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

**33. Inboard Aft Closure Rib And Skin Damage Repair.** See figure 11. Procedures listed below are for upper and lower skins, inboard closure rib, and core damage. However, if damage is less, this repair can be used for individual components. This repair is intermediate level maintenance. Add repair weight shown

in figure to total of all repairs within affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Vacuum Gage	-
Vacuum Source	-

### Materials Required

Nomenclature	Specification or Part Number
7075-0 Alclad Adhesive	QQ-A-250/13
Adhesive	EA9321A/B
Cloth, Graphite Epoxy, Dry Woven	EA956
Cloth, Satin, Bleeder	W133, Type 1
Cloth, Satin, Breather	MIL-C-9084 Type 3, Class 2
Cloth, Scrim, Nylon	MIL-C-9084 Type 8, Class 2
Cloth, Teflon	Pattern 30
Cloth, Teflon	TEMP-R-GLAS 3TLL
Gloves, Cotton Work, Men's	TEMP-R-GLAS 6TB
Film, Mylar, Polyester	MIL-G-3866, Type 1
Film, Nylon, 2 Mils Thick	0.142 Gage, Mylar-Type A
Honeycomb Core Kit	WRIGHTLON 7400
or	135001-1001, -1002, -1005, -1007, -1009, or -1011, 1/8-inch cell, 0.002 Inch Thick Foil
Aluminum Alloy	or
Honeycomb Plug	74K000005
Repair Kit	
Lubricant, Fluorocarbon	MS-122
Paper, Abrasive	A-A-1047, Grit 180-9X12
Plaster, Gypsum	240-9X11
Plastic Sheet	Hydrocal B-11
Plastic Sheet	200SG40TR
Tape, Vacuum Bag Sealant	MIL-P-18177, Type GEE0
	9151-1-500

a. Remove trailing edge flap (A1-F18AC-570-300, WP039 00).

b. Remove damaged skin, rib, and core. Cut out only enough to remove damage to maximum dimensions, see view A. Maintain a 1.00R minimum inside corner radius.

c. Do NDI for water entrapment (A1-F18AC-SRM-300, WP013 00).



Monitor drying closely to avoid damage to skin or honeycomb core.

d. Dry damage area, Water Removal (A1-F18AC-SRM-250, WP005 00).

e. Repair any remaining delaminations (A1-F18AC-SRM-250, WP015 00).

f. Remove surface finish 3.00 inches around cutout on upper and lower skins using 180 and 240 grit abrasive paper, being careful not to sand into the carbon fibers.

g. Fabricate repair rib, as required, per steps noted below:

(1) Get a spare undamaged trailing edge flap same as damaged flap, to be used to form a casting to mold a repair rib. Make sure spare flap closure rib measures at least 0.125 depth longer, from the outboard flange edges to the inboard web of the rib, than the rib to be repaired, see view B.



Fluorocarbon Lubricant

5

(2) Apply fluorocarbon lubricant to spare flap closure rib.

#### NOTE

Be sure the casting can be removed before curing plaster.

(3) Fill the rib with plaster and cure 12 hours at 125°F.

(4) Remove casting from rib. Sand smooth, seal, and dry thoroughly.

(5) Apply fluorocarbon lubricant to dried casting.



Adhesive

1

(6) Place a ply of graphite epoxy cloth on a layer of 200SG40TR plastic sheet. Saturate the ply with EA956 adhesive.

(7) Place another layer of plastic sheet over the ply and roll the sheets to work adhesive into the graphite epoxy cloth.

(8) Cut three plies from the saturated cloth large enough to form around the repair rib casting with weave orientation, see view B.

(9) Apply EA956 adhesive to forming surface of casting. Remove one layer of plastic sheet from the inner ply and form the ply around the casting, removing all entrapped air.

(10) Remove second layer of plastic sheet from formed ply.

(11) Install middle and outer plies same method as inner ply.

(12) Cover plies and casting with 200SG40TR plastic sheet, followed by one layer of breather cloth.

(13) Install a vacuum source line and a vacuum gage line. Cover vacuum lines with a second layer of breather cloth. Connect the vacuum lines.

(14) Wrap WRIGHTLON 7400 plastic sheet around the whole repair rib/vacuum bag assembly. Seal all open edges of plastic sheet with adhesive tape.

(15) Cure repaired assembly at 24 to 29 inches of mercury at 190°F for 1 hour.

(16) Remove vacuum bag assembly. Remove cured repair rib from casting. Retain casting for later use.

h. Select shim material from graphite epoxy patch fabrication (A1-F18AC-SRM-250, WP006 00) and fabricate upper and lower shims same thickness as skin, see figure 1.

i. Fabricate arrowhead from MIL-P-18177, Type GEE0 sheet to fit into aft end of replacement rib; see view P.



Adhesive

3

j. Install shims and arrowhead on replacement rib using EA9321A/B adhesive (A1-F18AC-SRM-250, WP007 00), see views C and D.

k. Fabricate aluminum plate to protect the existing core during cure, see view E. Plate can be above upper mold line, but not below, and shall meet lower mold line.

l. Insert wooden block with adhesive tape into forward end of undamaged rib to form a complete seal for the vacuum bag; see view E.

m. Cover the aluminum plate with 200GS40TR plastic sheet.

n. Fabricate lower mold line patch per steps noted below.

(1) Tape a layer of TEMP-R-GLAS 6TB coated cloth over the area that the patch is to cover.

(2) Prepare EA956 adhesive (A1-F18AC-SRM-200, WP011 00).

(3) Place a layer of dry, graphite epoxy cloth on a Mylar Type A plastic sheet. Graphite epoxy cloth shall be large enough to cut three patch plies from.

(4) Saturate graphite epoxy cloth with EA956 adhesive

(5) Place a second layer of Mylar Type A plastic sheet over the saturated cloth. Roll cloth between the plastic sheets to work adhesive into the cloth.

(6) Cut three patch plies from cloth/plastic sandwich. Be sure plies are large enough for a 2.50 overlap of cutout area. Cut inner, middle, and outer plies to get correct ply weave orientation.

(7) Apply EA956 adhesive to TEMP-R-GLAS 6TB coated cloth taped to flap.

(8) Remove one layer of Mylar Type A plastic sheet from inner ply and place it on the TEMP-R-GLAS 6TB coated cloth, at correct ply orientation. Remove any entrapped air bubbles. Remove second layer of plastic sheet.

(9) Repeat previous step for middle, then outer plies.

(10) Cover plies with one layer of TEMP-R-GLAS 3TLL coated cloth, followed by one layer of bleeder cloth.

(11) Place sheet of TEMP-R-GLAS 6TB coated cloth over whole patch assembly.

(12) Perforate TEMP-R-GLAS 6TB coated cloth in center of film.

(13) Place two layers of breather cloth over TEMP-R-GLAS 6TB coated cloth.

(14) Place vacuum bag over patch layup.

(15) Cure with heat blanket vacuum bag at 250°F (A1-F18AC-SRM-250, WP004 00).

o. Install lower patch using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00); see views E, F, and G. Make sure patch has a 2.0 inch overlap for bond line.

p. Bond replacement rib with upper and lower shims to lower patch using EA9321A/B adhesive. Locate in position using a temporary alignment angle and C clamps; see views H, J, and K. Make sure lower patch and replacement rib maintain mold line location.

q. Get replacement honeycomb core and trim to fit cutout area; see view L. Maintain original core ribbon direction.

r. Apply EA9321A/B adhesive around perimeter of replacement core to bond core-to-core. Ensure to fill gap from lower patch up to replacement of core. Also, bond replacement core to lower patch using EA9321 A/B adhesive.

s. Cure adhesive at room temperature for 2 hours followed by 190° ± 10°F for 1 hour. Add excess adhesive to allow for shrinkage (A1-F18AC-SRM-250, WP004 00).

t. Verify core to mold line match-up.

u. Select upper patch per Graphite Epoxy Patch Fabrication (A1-F18AC-SRM-250, WP006 00).

v. Install upper patch using EA9321A/B adhesive per Graphite Epoxy Patch Installation (A1-F18AC-SRM-250, WP007 00). Make sure patch has a 2.0 inch overlap for bond line. Use wooden block with rubber pad during vacuum to prevent rib damage; see view M.

w. Fabricate and bond splice channel to existing rib and replacement rib using EA9321A/B adhesive and netting cloth; see view N (A1-F18AC-SRM-250, WP004 00)

x. Trim inboard edge of replacement rib, shims, and splice channel to match flap edge (A1-F18AC-SRM-200, WP004 08).

y. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

z. Reinstall trailing edge flap (A1-F18AC-570-300, WP039 00).

Table 1. Patch Selection and Weights, Zones A1, A2, B1

Damage Cutout Size (Dia)	Patch			3 Class VII Total Repair Weight Single Skin Damage		4 Class VII Total Repair Weight Double Skin Damage	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone A1, B1	Zone A2	Zone A1, B1	Zone A2
Graphite Epoxy - Single Patch							
0.0 to 0.50	-1001	2.75	0.02	6	6	6	6
0.50 to 1.50	-1007	4.00	0.04	6	6	6	6
1.50 to 2.75	-1009	5.25	0.07	0.32	0.61	0.34	0.63
2.50 to 4.00	-1011	6.50	0.11	0.50	0.94	0.50	0.95
4.00 to 5.25	-1013	7.75	0.15	0.70	1.32	0.68	1.30
5.25 to 6.00	-1015	9.00	0.21	0.87	1.59	0.84	1.57
Titanium - Single Patch							
0.0 to 0.50	-2001	2.75	0.02	6	6	6	6
0.50 to 1.50	-2005	4.00	0.04	6	6	6	6
1.50 to 2.75	-2015	7.25	0.12	0.36	0.66	0.44	0.73
2.50 to 4.00	-2023	9.75	0.21	0.60	1.05	0.71	1.15
4.00 to 5.25	-2033	12.25	0.36	0.90	1.53	1.10	1.72
Titanium - Two Patches							
1.50 to 2.75	-2009 -2007	5.25	0.12	0.36	0.65	0.44	0.73
2.75 to 4.00	-2013 -2011	6.50	0.18	0.57	1.01	0.65	1.09

Table 1. Patch Selection and Weights, Zones A1, A2, B1 (Continued)

Damage Cutout Size (Dia)	Patch			3 Class VII Total Repair Weight Single Skin Damage		4 Class VII Total Repair Weight Double Skin Damage	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone A1, B1	Zone A2	Zone A1, B1	Zone A2
4.00 to 5.25	-2017 -2015	7.75	0.25	0.80	1.42	0.88	1.50
5.25 to 6.00	-2019 -2017	8.50	0.30	0.95	1.68	1.03	1.76

## NOTES

1. Either EA9321A/B or FM300 adhesive may be used.

2 The -1000 numbers are dash numbers of the 7K000002 kit. The -2000 numbers are dash numbers of the 74K000003 kit.

3 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.

4 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates both skins and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.

5 For damage repair using patch and filler, add patch weight to applicable filler weight in table 5. Patch weight includes weight of bonding adhesive.

6 Repair weight determined by adding patch weight to filler weight per table 5.

Table 2. Patch Selection and Weights, Zones A3, B3

Damage Cutout Size (Dia)	Patch			3 Class VII Repair Weight Single Skin		4 Class VII Total Repair Weight Double Skin	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone A3	Zone B3	Zone A3	Zone B3
Graphite Epoxy Single Skin							
0.0 to 0.50	-1001	2.75	0.02	6	6	6	6
0.50 to 1.50	-1007	4.00	0.04	6	6	6	6
1.50 to 2.75	-1013	7.75	0.15	0.79	0.68	0.89	0.78
2.50 to 4.00	-1017	10.25	0.27	1.26	1.09	1.40	1.24
4.00 to 5.25	-1021	12.75	0.40	1.79	1.55	2.00	1.76

Table 2. Patch Selection and Weights, Zones A3, B3 (Continued)

Damage Cutout Size (Dia)	Patch			3 Class VII Repair Weight Single Skin		4 Class VII Total Repair Weight Double Skin	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone A3	Zone B3	Zone A3	Zone B3
Titanium - Single Patch							
0.0 to 0.50	-2001	2.75	0.02	6	6	6	6
0.50 to 1.50	-2005	4.00	0.04	6	6	6	6
Titanium - Two Patches							
1.50 to 2.75	-2013 -2011	6.50	0.18	0.82	0.71	0.94	0.83
2.75 to 4.00	-2021 -2019	9.00	0.34	1.33	1.16	1.56	1.39
4.00 to 5.25	-2015 -2041 OR	7.25	0.26	1.25	1.08	1.38	1.22
	-2031 -2029 OR	12.25	0.62	1.99	1.76	2.41	2.18
5.25 to 6.00	-2019 -2043	8.50	0.36	1.73	1.50	1.89	1.66
	-2023 -2045	9.75	0.47	2.10	1.82	2.31	2.03

## NOTES

1. FM300 adhesive must be used in this area.

2 The -1000 numbers are dash numbers of the 74K000002 kit. The -2000 numbers are dash numbers of the 74K000003 kit.

3 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.

4 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates both skins and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.

5 For damage repair using patch and filler, add patch weight to applicable filler weight in table 5. Patch weight includes weight of bonding adhesive.

6 Repair weight determined by adding patch weight to filler weight per table 5.

Table 3. Patch Selection and Weights, Zones B2

Damage Size (Dia)	Patch			3 Class VII Repair Weight Single Skin	4 Class VII Repair Weight Double Skin
	No. 2	Size (Dia)	Weight 5 (lb)	Zone B2	Zone B2
Graphite Epoxy Single Skin					
0.0 to 0.50	-1001	2.75	0.02	6	6
0.50 to 1.50	-1007	4.00	0.04	6	6
1.50 to 2.75	-1009	5.25	0.07	0.46	0.48
2.50 to 4.00	-1011	6.50	0.11	0.72	0.73
4.00 to 5.25	-1013	7.75	0.15	1.01	0.99
5.25 to 6.00	-1015	9.00	0.21	1.23	1.21
Titanium - Single Patch					
0.0 to 0.50	-2001	2.75	0.02	6	6
0.50 to 1.50	-2005	4.00	0.04	6	6
1.50 to 2.75	-2015	7.25	0.12	0.51	0.58
2.50 to 4.00	-2023	9.75	0.21	0.82	0.93
Titanium - Two Patches					
1.50 to 2.75	-2009 -2007	5.25	0.12	0.51	0.58
2.75 to 4.00	-2013 -2011	6.50	0.18	0.79	0.87
4.00 to 5.25	-2017 -2015	7.75	0.25	1.11	1.19
5.25 to 6.00	-2019 -2017	8.50	0.30	1.32	1.39
NOTES					
1. Either EA9321A/B or FM300 adhesive may be used.					
2 The -1000 numbers are dash numbers of the 74K000002 kit. The -2000 numbers are dash numbers of the 74K000003 kit.					



Table 3. Patch Selection and Weights, Zones B2 (Continued)

Damage Size (Dia)	Patch			3 Class VII Repair Weight Single Skin	4 Class VII Repair Weight Double Skin
	No. 2	Size (Dia)	Weight 5 (lb)	Zone B2	Zone B2
<p>3 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.</p> <p>4 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates both skins and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.</p> <p>5 For damage repair using patch and filler, add patch weight to applicable filler weight in table 5. Patch weight includes weight of bonding adhesive.</p> <p>6 Repair weight determined by adding patch weight to filler weight per table 5.</p>					

Table 4. Patch Selection and Weights, Zones D1, D2, E1, E2

Damage Cutout Size (Dia)	Patch			3 Class VII Repair Weight Single Skin		4 Class VII Repair Weight Double Skin	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone D1, E1	Zone D2, E2	Zone D1, E1	Zone D2, E2
Graphite Epoxy Single Skin							
0.0 to 0.50	-1001	2.75	0.02	6	6	6	6
0.50 to 1.50	-1007	4.00	0.04	6	6	6	6
1.50 to 2.75	-1009	5.25	0.07	0.24	0.39	0.26	0.41
2.50 to 4.00	-1011	6.50	0.11	0.38	0.61	0.39	0.61
Titanium - Single Patch							
0.0 to 0.50	-2001	2.75	0.02	6	6	6	6
0.50 to 1.50	-2005	4.00	0.04	6	6	6	6
1.50 to 2.75	-2015	7.25	0.12	0.29	0.44	0.36	0.51
2.50 to 4.00	-2023	9.75	0.21	0.48	0.71	0.59	0.82
Titanium - Two Patches							
1.50 to 2.75	-2009 -2007	5.25	0.12	0.29	0.43	0.36	0.50

Table 4. Patch Selection and Weights, Zones D1, D2, E1, E2 (Continued)

Damage Cutout Size (Dia)	Patch			3 Class VII Repair Weight Single Skin		4 Class VII Repair Weight Double Skin	
	No. 2	Size (Dia)	Weight 5 (lb)	Zone D1, E1	Zone D2, E2	Zone D1, E1	Zone D2, E2
2.75 to 4.00	-2013 -2011	6.50	0.18	0.45	0.68	0.53	0.75

**NOTES**

1. Either EA9321A/B or FM300 adhesive may be used.
- 2 The -1000 numbers are dash numbers of the 74K000002 kit. The -2000 numbers are dash numbers of the 74K000003 kit.
- 3 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.
- 4 The class VII repair weight is for damage over 1 1/2 inches in diameter which penetrates both skins and the honeycomb core. For damage repair using patch and filler (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 5.
- 5 For damage repair using patch and filler, add patch weight to applicable filler weight in table 5. Patch weight includes weight of bonding adhesive.
- 6 Repair weight determined by adding patch weight to filler weight per table 5.

Table 5. Estimated Repair Weights in Pounds for EA9321A/B and Chopped Glass Floc, Filler Compound, Class VII

Max Damage Size Dia	Depth of Fill - (Inches)							
	0.25	0.50	0.75	1.00	1.5	2.0	3.0	4.0
0.25	-	-	-	-	-	0.01	0.01	0.01
0.50	-	0.01	0.01	0.01	0.02	0.02	0.04	0.05
0.75	0.01	0.01	0.02	0.03	0.04	0.05	0.08	0.11
1.00	0.01	0.02	0.04	0.05	0.07	0.09	0.14	0.19
1.25	0.02	0.04	0.06	0.07	0.11	0.15	0.22	0.30
1.50	0.03	0.05	0.08	0.11	0.16	0.21	0.32	0.42

**Table 6. Estimated Repair Weights in Pounds for EA956 Injection for Core to Web Unbonds, Class II**

Length of Core to Web Unbond	Height of Core to Web Unbond - (Inches)							
	0.25	0.50	0.75	1.0	1.5	2.0	3.0	4.0
0.50	-	-	-	0.01	0.01	0.01	0.02	0.02
1.0	-	0.01	0.01	0.01	0.02	0.02	0.04	0.05
2.0	0.01	0.01	0.02	0.02	0.04	0.05	0.07	0.09
3.0	0.01	0.02	0.03	0.04	0.05	0.07	0.10	0.14
4.0	0.01	0.02	0.04	0.05	0.07	0.09	0.14	0.19
5.0	0.01	0.03	0.04	0.06	0.09	0.12	0.17	0.23
7.5	0.02	0.04	0.07	0.09	0.13	0.17	0.26	0.35
10.0	0.03	0.06	0.09	0.12	0.17	0.23	0.35	0.46
15.0	0.04	0.09	0.13	0.17	0.26	0.35	0.52	0.69
20.0	0.06	0.12	0.17	0.23	0.35	0.46	0.69	0.92

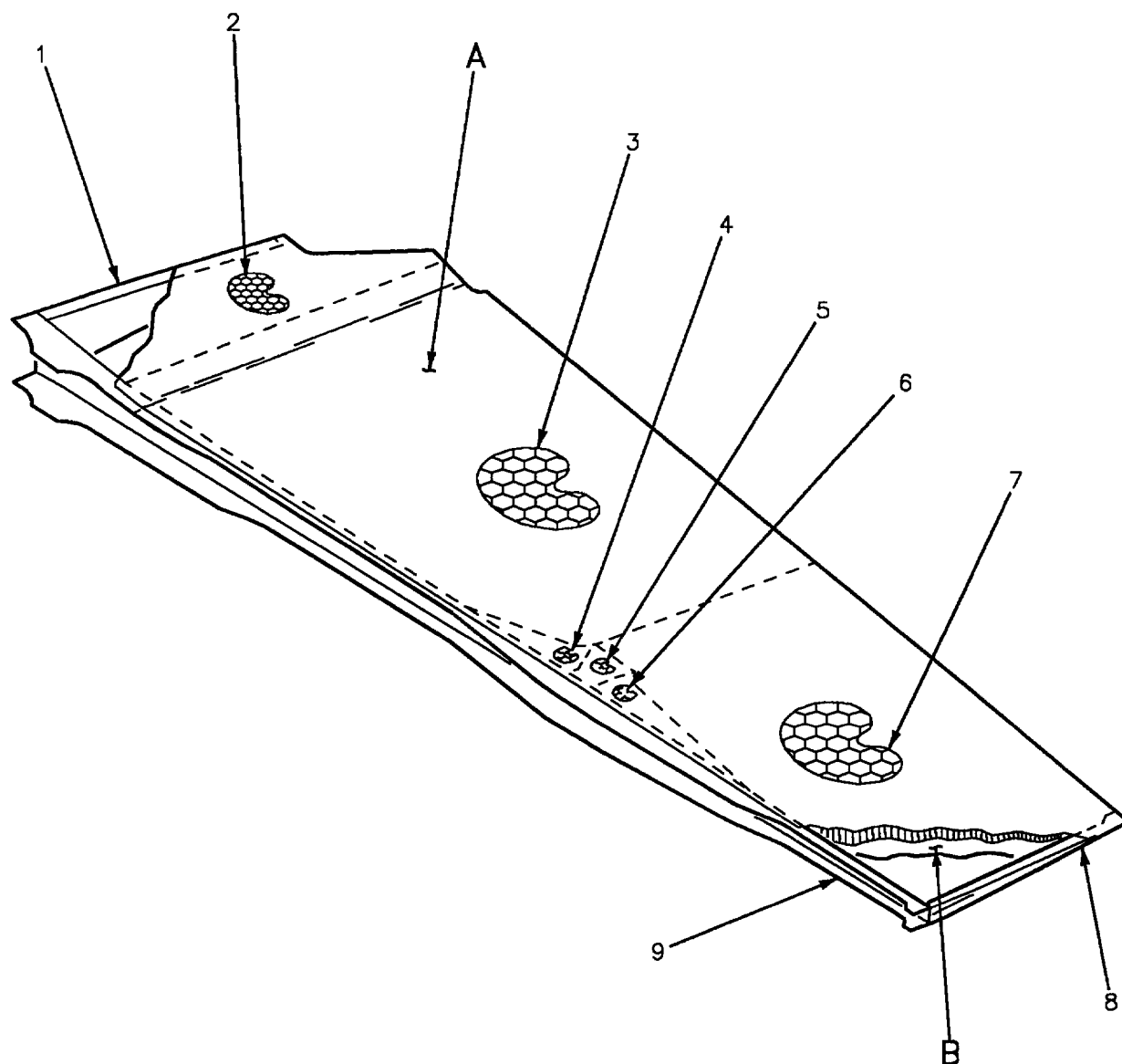


Figure 1. Material Index (Sheet 1)

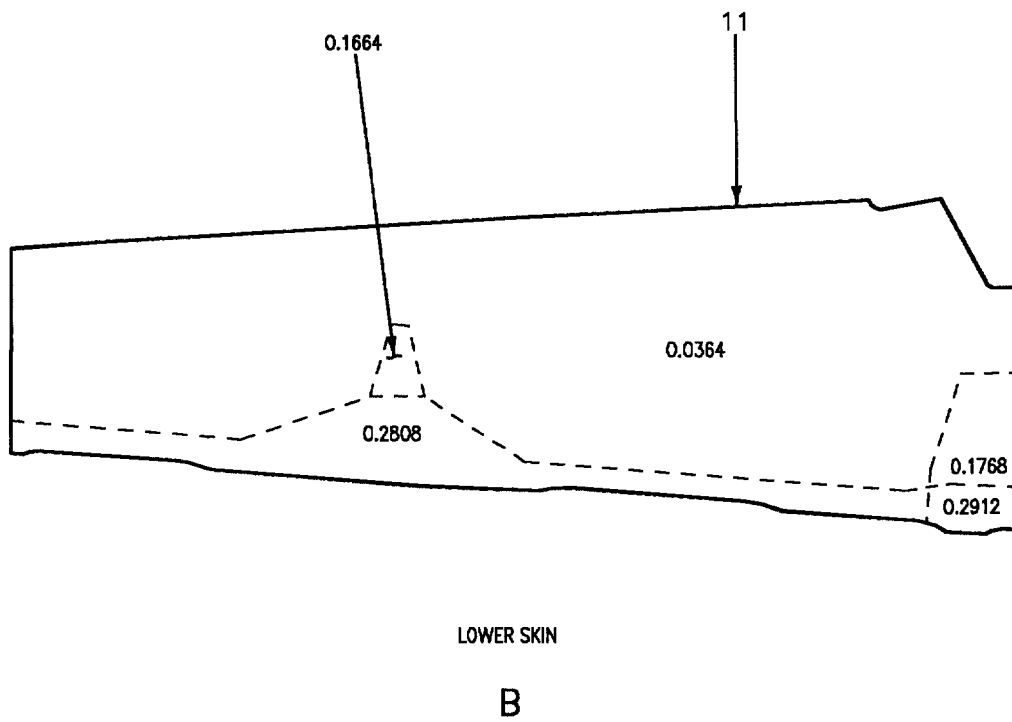
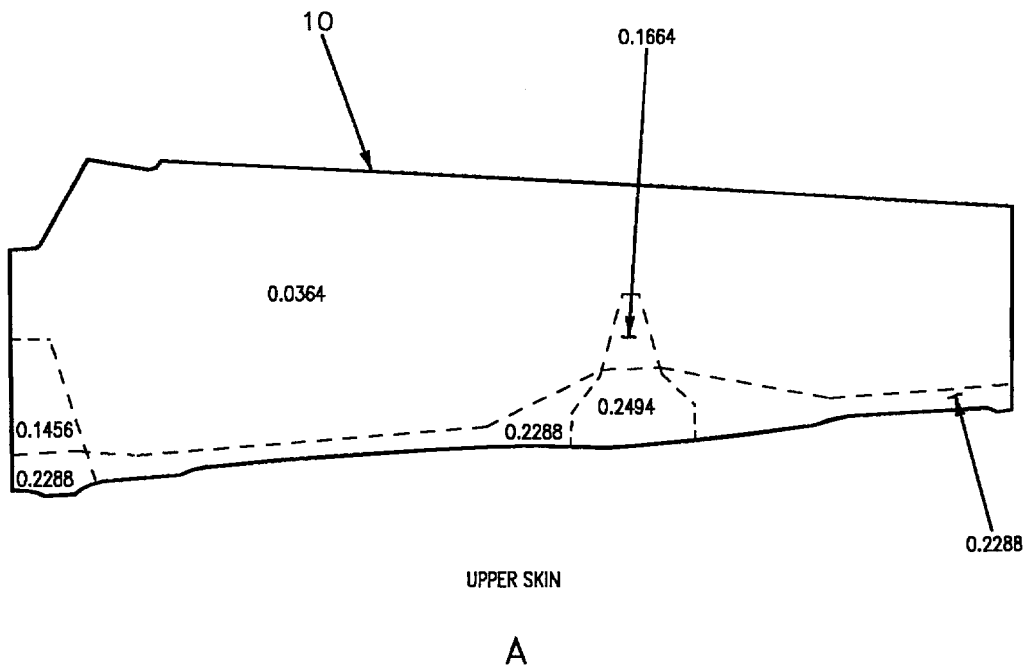


Figure 1. Material Index (Sheet 2)

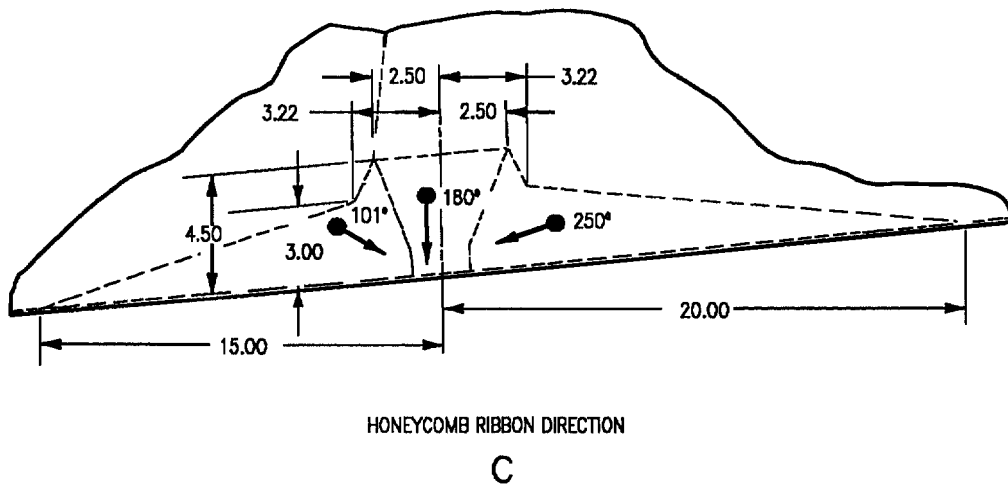
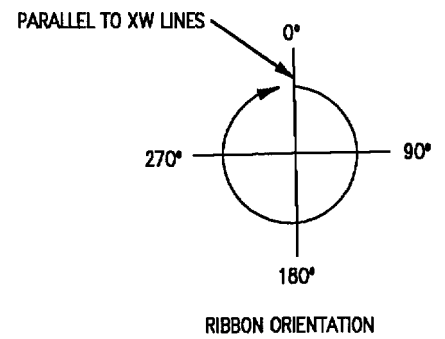
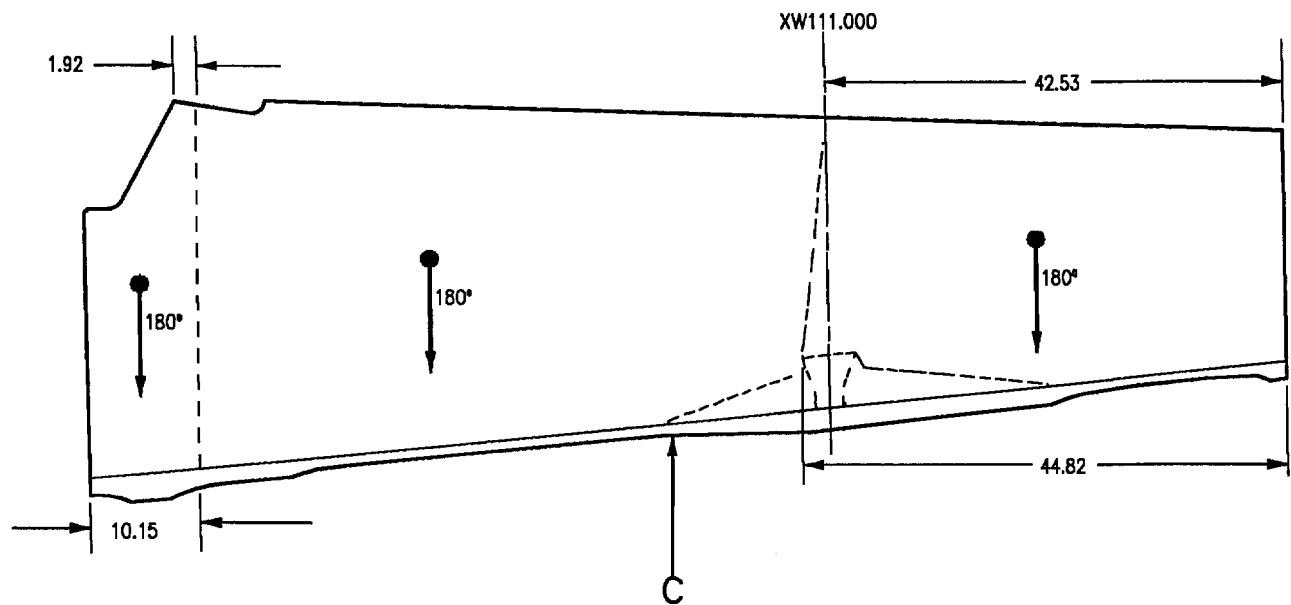


Figure 1. Material Index (Sheet 3)

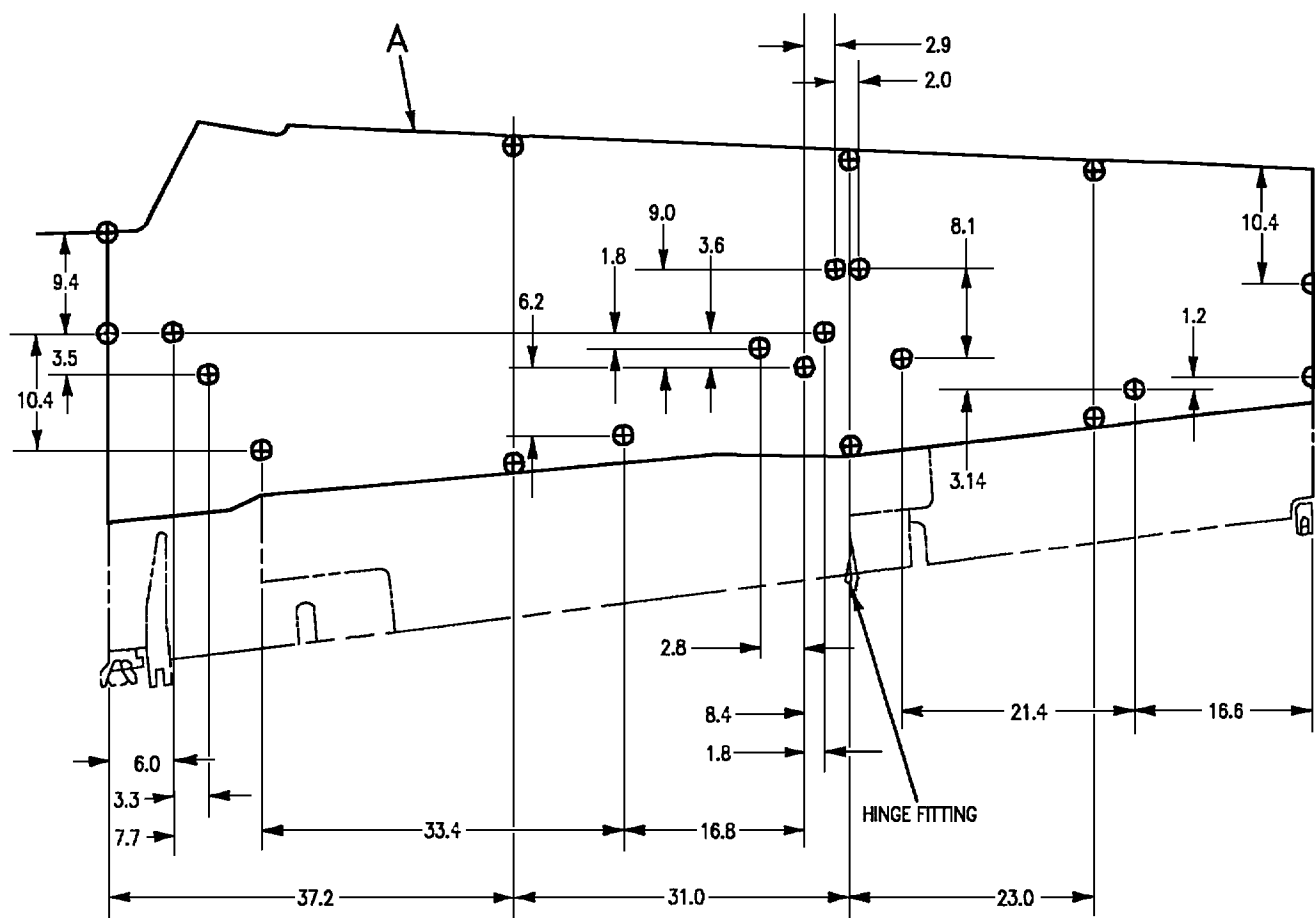
Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	12 13	Rib 74A180607-2007, -2008 74A180607-2019, -2020	0.042 Laminate	2
2		Core 74A180602-2011, -2012	3	5056-H39 Al Aly
3	15 16 17 18	Core 74A180602-2003 74A180602-2004 74A180602-2015 74A180602-2016	4	5056-H39 Al Aly
4	15 16	Core 74A180602-2005 74A180602-2006	5	5056-H39 Al Aly
5	15 16	Core 74A180602-2007 74A180602-2008	5	5056-H39 Al Aly
6	15 16	Core 74A180602-2009 74A180602-2010	5	5056-H39 Al Aly
7	15 16 17 18	Core 74A180602-2001 74A180602-2002 74A180602-2013 74A180602-2014	6	5056-H39 Al Aly
8	12 13	Rib 74A180613-2001, -2002 74A180613-2017, -2018	0.042 Laminate	10
9	11 7 19 9 20 14 21	Spar 74A180605-1001 74A180605-1005 74A180605-1006 74A180605-1007 74A180605-1008 74A180605-1011 74A180605-1012	8 8 8 8 8	8 8 8 8 8
10	22 23	Skin 74A180600-1001, -1002 74A180600-1003, -1004	1	1
11	22 23	Skin 74A180601-1001, -1002 74A180601-1003, -1004	1	1

Figure 1. Material Index (Sheet 4)

Idx No.	Eft	Nomenclature	Decription	Material
LEGEND				
1		Various plys of graphite epoxy prepreg and glass epoxy laminate.		
2		Fiberglass reinforced plastic laminate.		
3		1/8 hexcell x 0.0015 honeycomb.		
4		3/16 hexcell x 0.0010 honeycomb.		
5		1/8 hexcell x 0.0020 honeycomb.		
6		1/8 hexcell x 0.0010 honeycomb.		
7		161353 THRU 161361, 161363 THRU 161367, 161521.		
8		Various plys of graphite epoxy laminate.		
9		161519, 161520, 161522 THRU 161929.		
10		Graphite epoxy laminate.		
11		161362.		
12		161353 THRU 161724.		
13		161725 AND UP.		
14		161930 AND UP.		
15		161353 THRU 161746, 161749 THRU 161926, 161936.		
16		161353 THRU 161746, 161749 THRU 161926, 161928, 161939.		
17		161747, 161748, 161927 THRU 161935, 161937 AND UP.		
18		161747, 161748, 161927, 161929 THRU 161937, 161940 AND UP.		
19		161353 THRU 161367, 161521.		
20		161519, 161520, 161522 THRU 161930.		
21		161931 AND UP.		
22		161353 THRU 162897, 192906 THRU 162908, 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163115 THRU 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132, 163136, 163139 THRU 163141, 163143, 163144, 163147, 163149, 163150, 163152, 163156, 163157, 163159, 163161, 163162.		
23		162898 THRU 162905, 192909 THRU 163092, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163118, 163120 THRU 163123, 163127, 163128, 163130, 163133 THRU 163135, 163137, 163138, 163142, 163145, 163146, 163148, 163151, 163153 THRU 163155, 163158, 163160, 163163 AND UP.		

Figure 1. Material Index (Sheet 5)



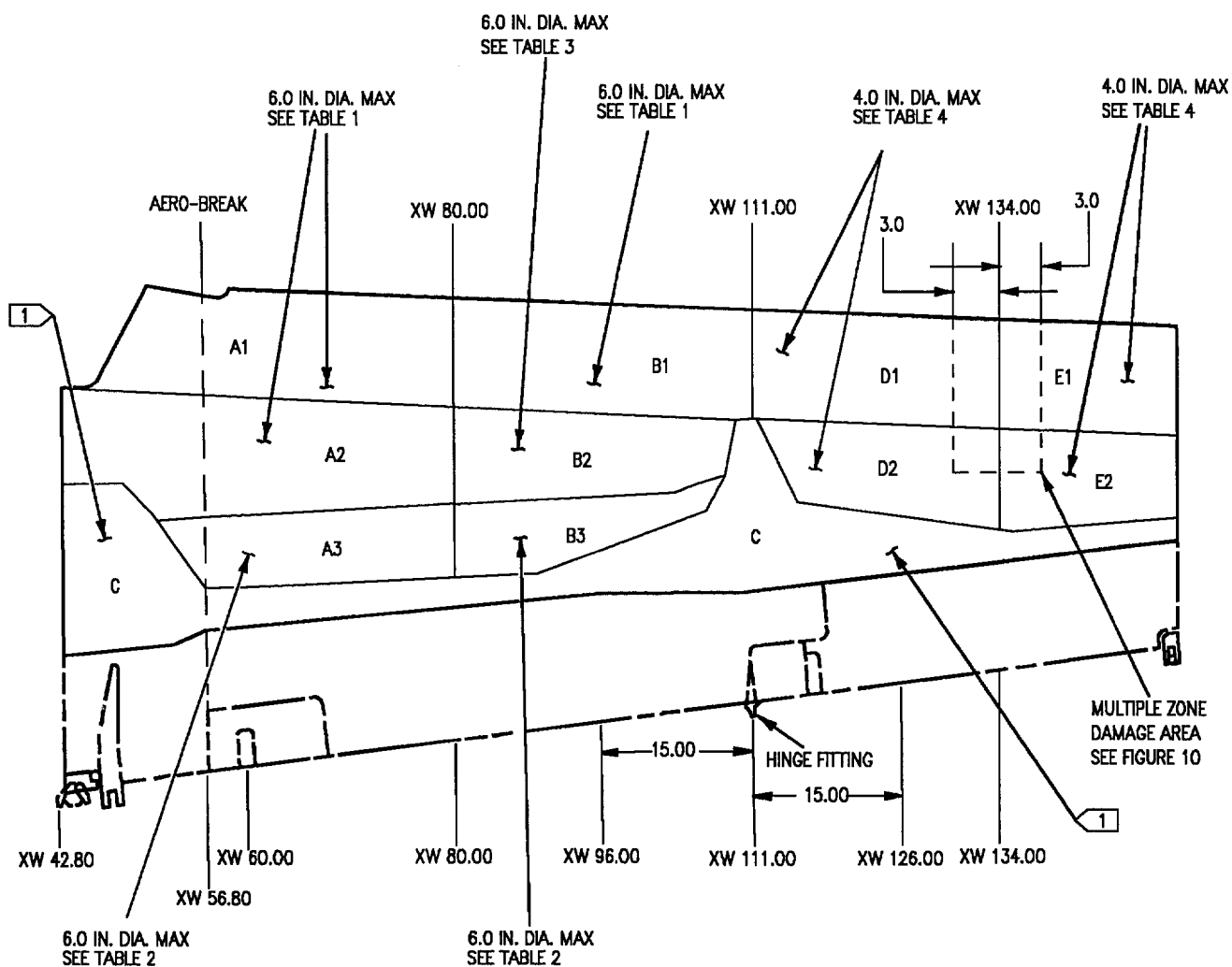


TOP SKIN LOCATION OF REPAIR POINTS

## LEGEND

1. DEPOT ENGINEERING DISPOSITION AREA. DAMAGE IN OTHER AREAS MUST NOT OVERLAP THIS AREA.
2. DISTANCE BETWEEN DAMAGES MUST BE AT LEAST FOUR TIMES THE DIAMETER OF THE LARGEST DAMAGE.
3. DISTANCE BETWEEN DAMAGE AND FASTENER HOLES MUST BE AT LEAST THE DIAMETER OF THE DAMAGE.
4. WHEN PATCHES ARE CENTERED OVER THE REPAIR AND EXTEND OVER ANY EDGE, THE PATCH MUST BE TRIMMED FLUSH WITH EDGE.
5. AN ENGINEERING DISPOSITION IS REQUIRED WHEN PATCHES ARE CENTERED OVER THE REPAIR, AND OVERLAP THE UPPER SURFACE AERO-BREAK (A SLIGHT RISE IN THE UPPER SKIN AT WING STATION XW58.80).
6. PATCH SIZE IS TWICE THE REPAIR HOLE.
7. WHEN A REPAIR IS IN TWO REPAIR AREAS USE THE SMALLEST PATCH.

Figure 2. Repair Zones - Composite Skins (Sheet 1)

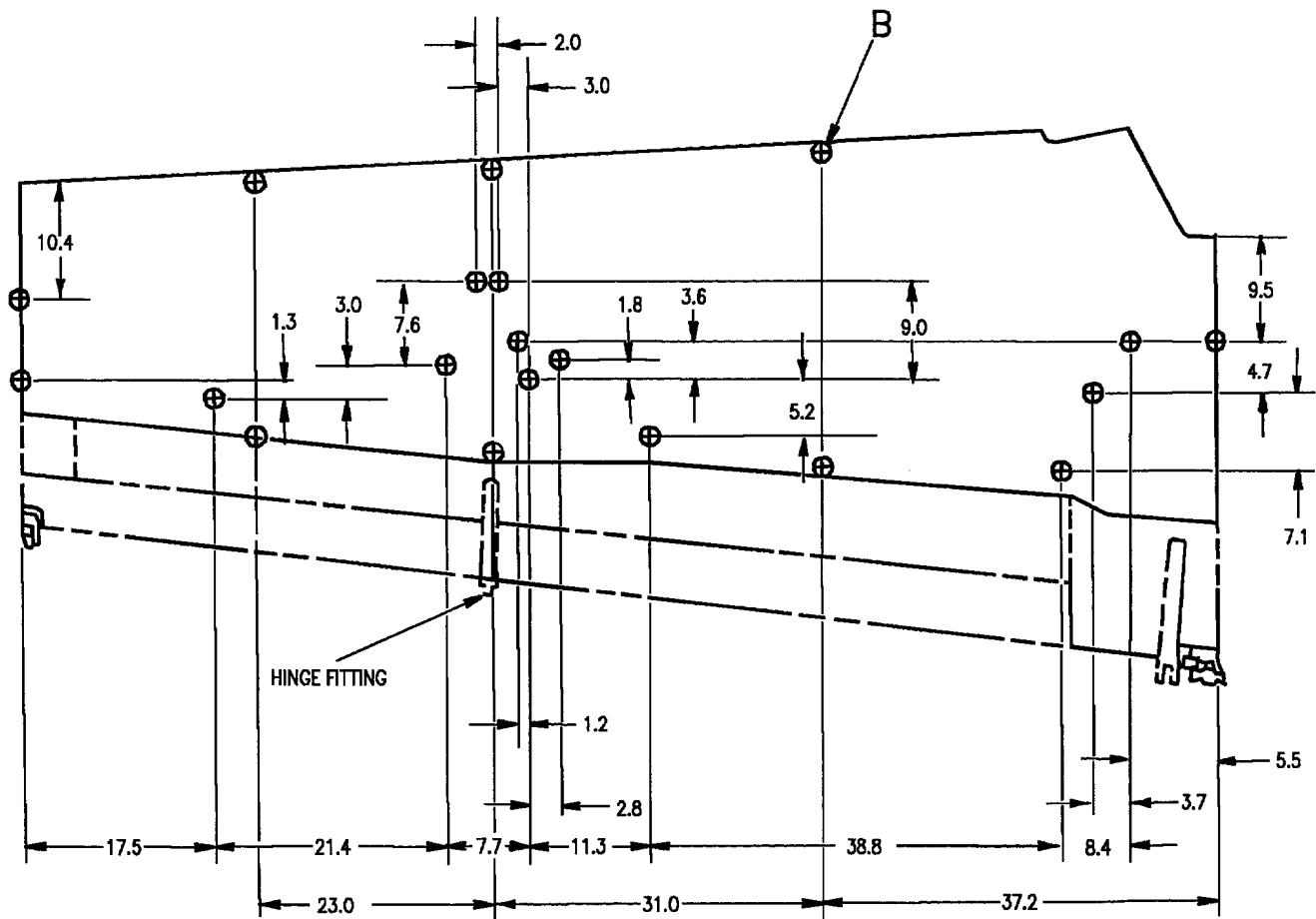


A

## REPAIR ZONES TOP SKIN

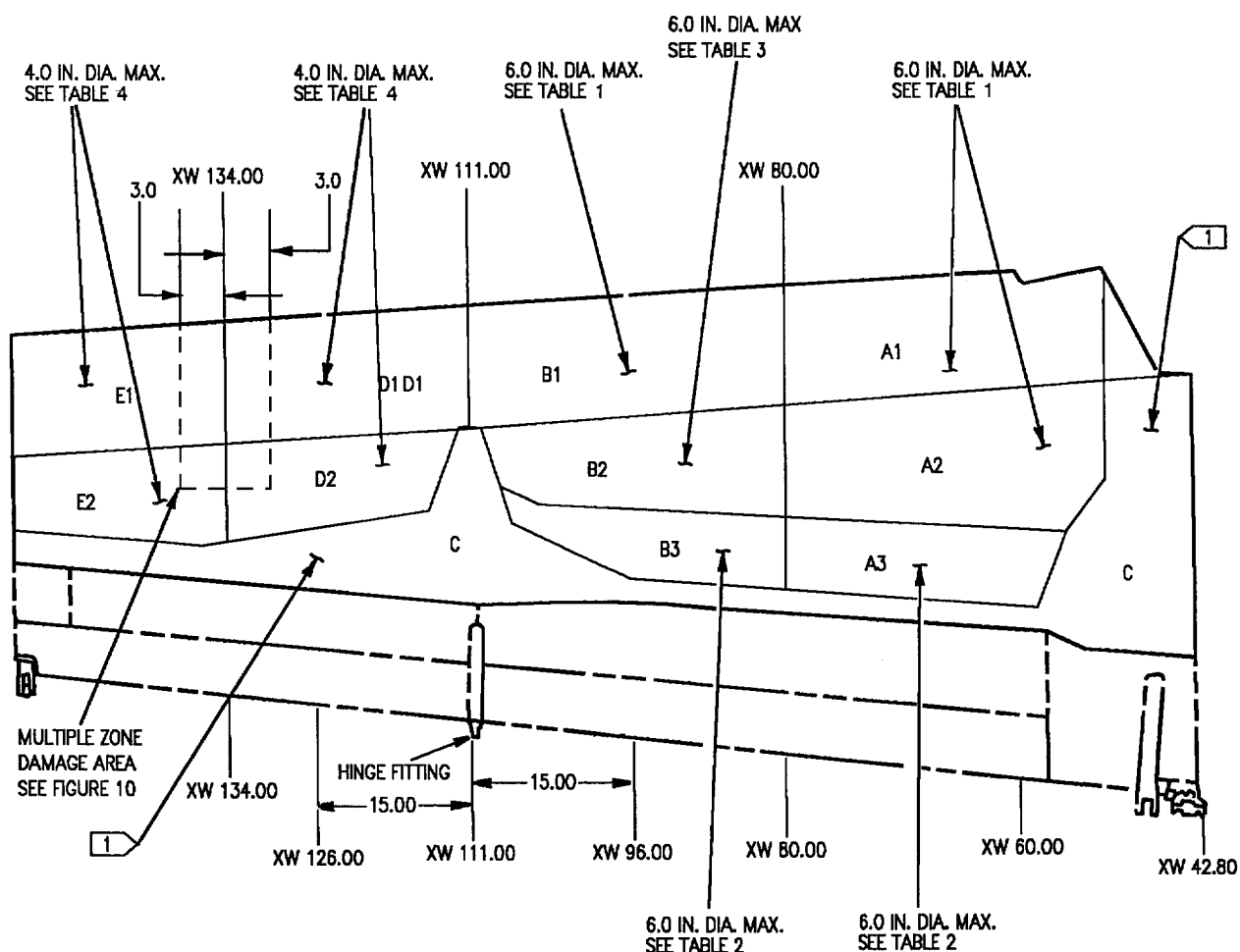
ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT (LB)
A1+A2+A3	4
B1+B2+B3	4
D1+D2	2
E1+E2	2

Figure 2. Repair Zones - Composite Skins (Sheet 2)



BOTTOM SKIN LOCATION OF REPAIR ZONE POINTS

Figure 2. Repair Zones - Composite Skins (Sheet 3)



B

## REPAIR ZONES BOTTOM SKIN

ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT (LB)
A1+A2+A3	4
B1+B2+B3	4
D1+D2	2
E1+E2	2

00800204

Figure 2. Repair Zones - Composite Skins (Sheet 4)

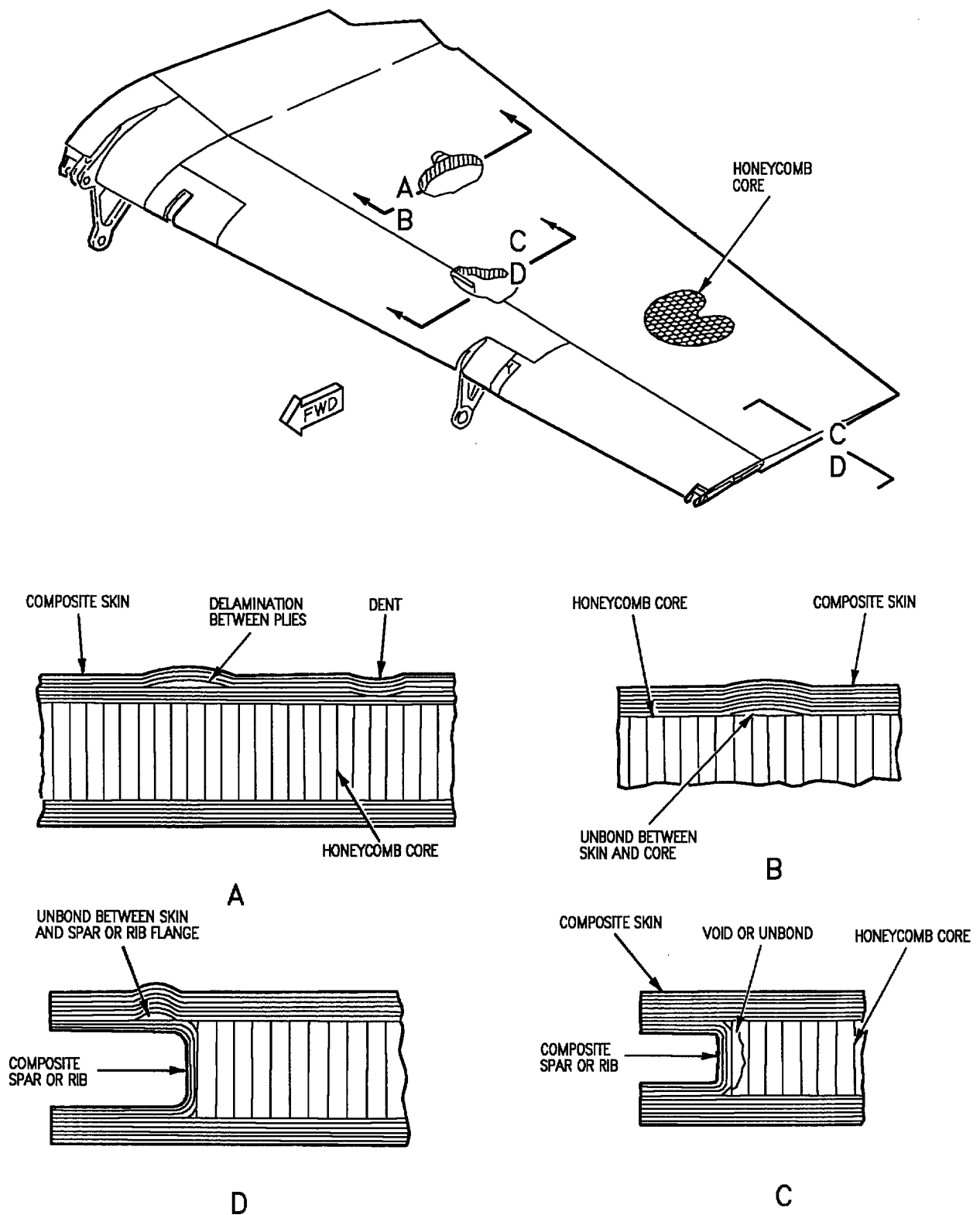


Figure 3. Negligible Damage - Composite Skins

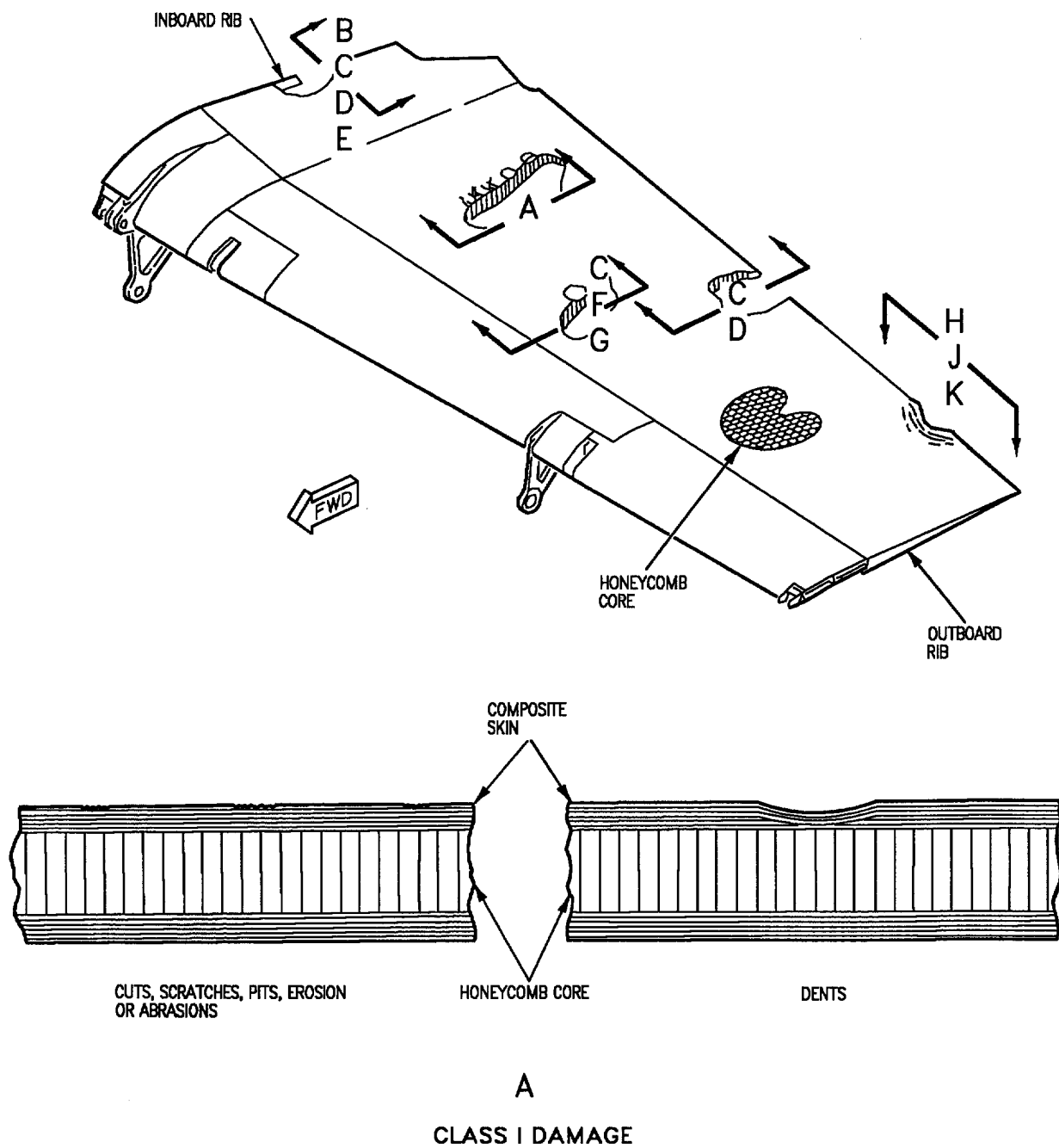


Figure 4. Repairable Damage - Composite Skins (Sheet 1)

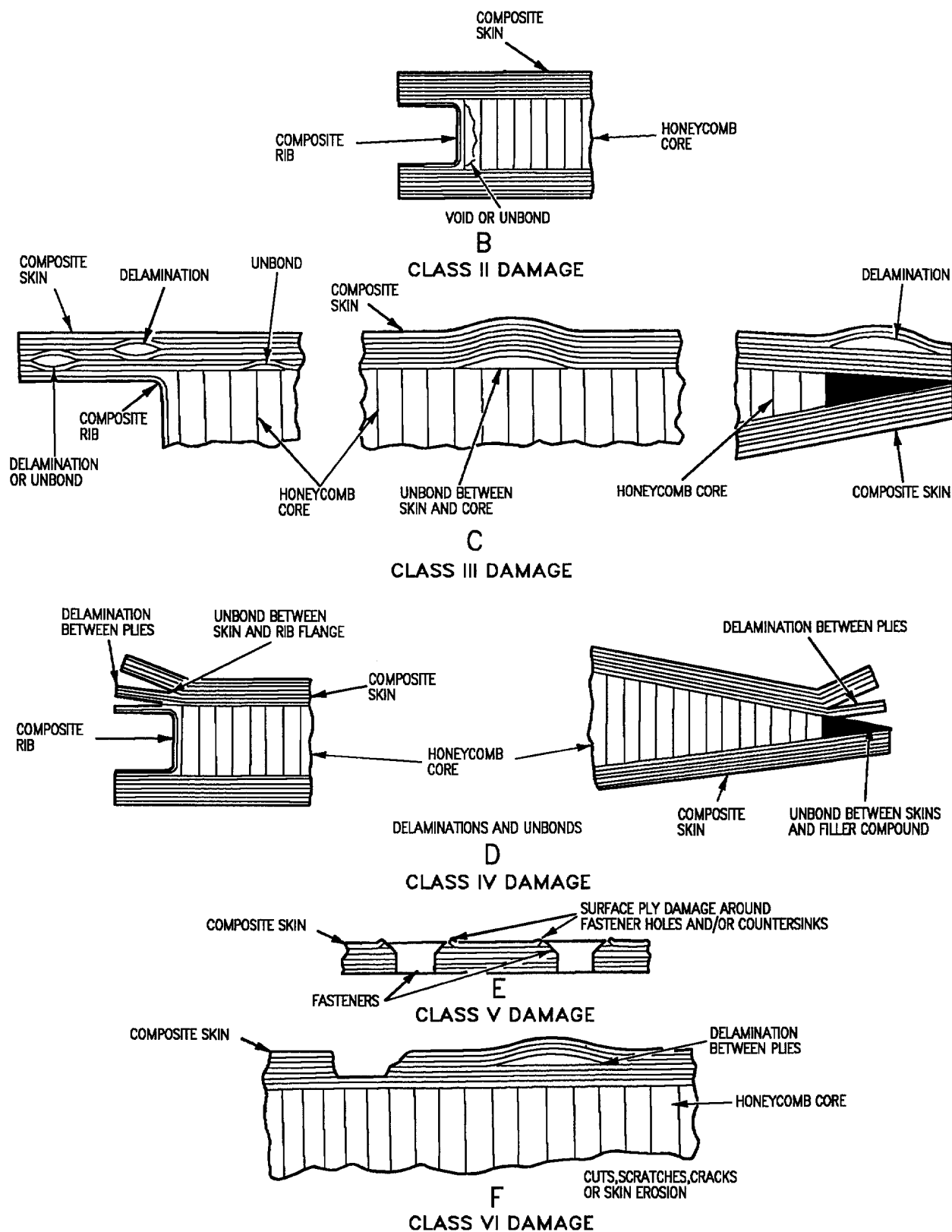
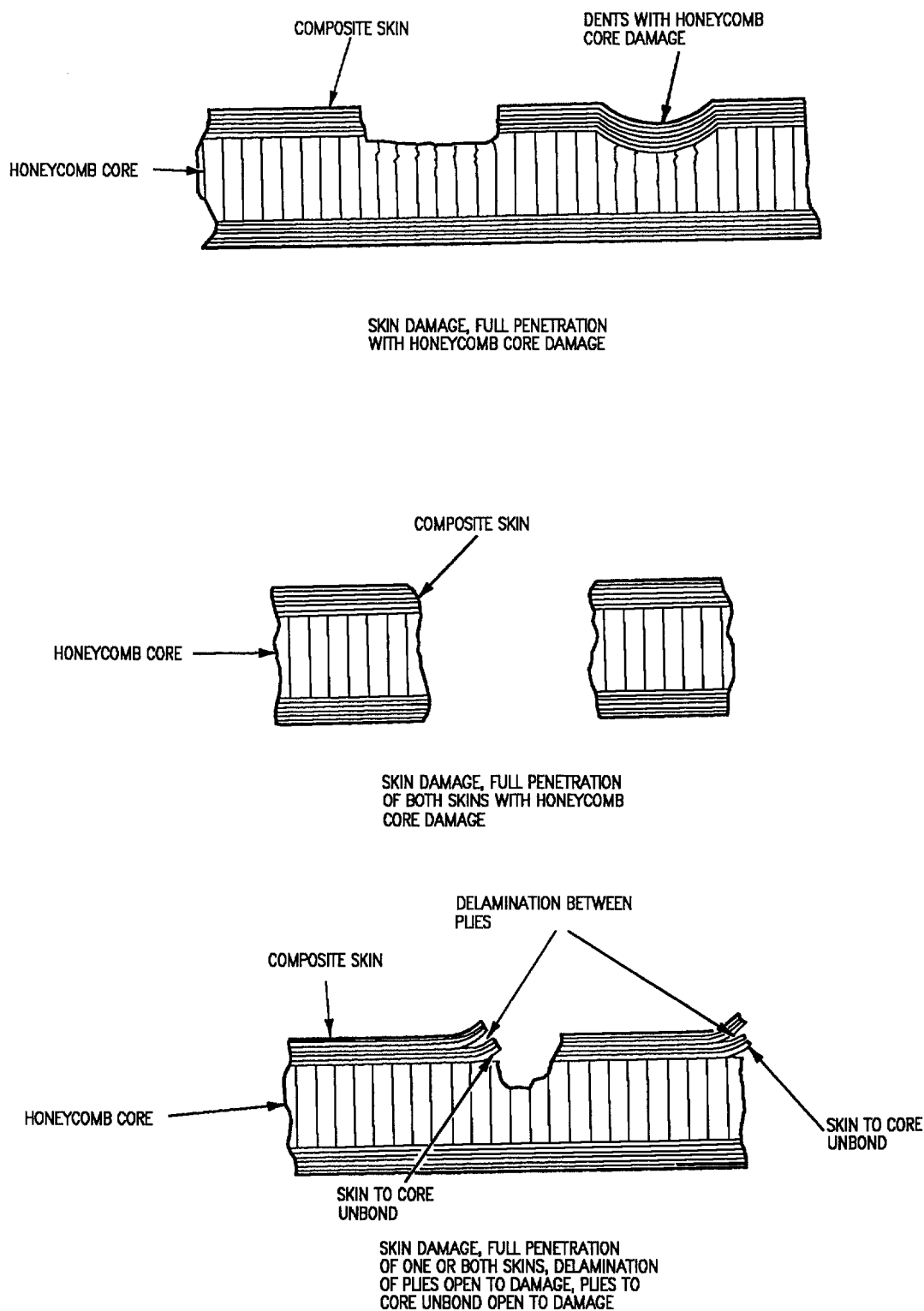


Figure 4. Repairable Damage - Composite Skins (Sheet 2)



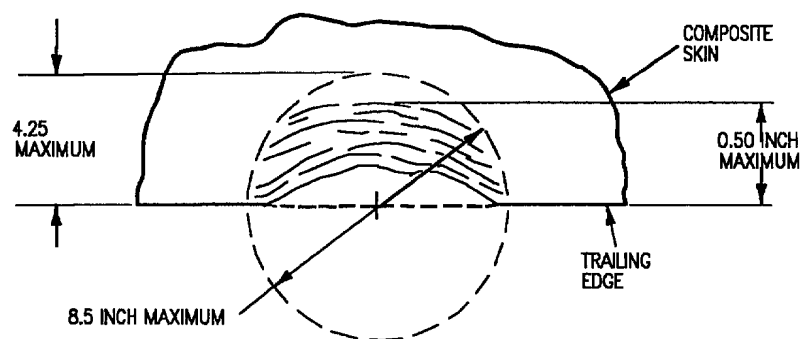
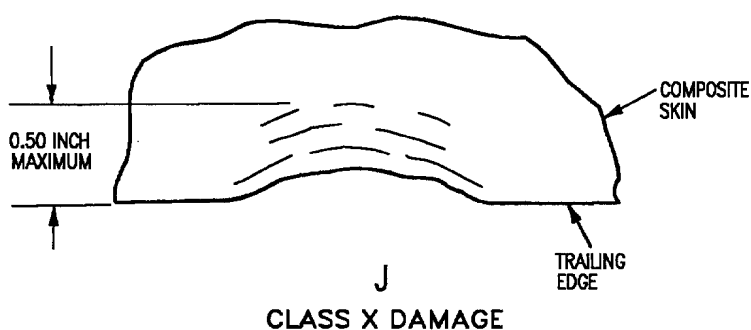
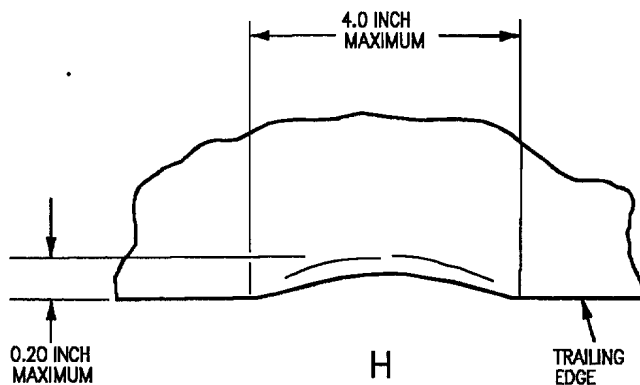
G

CLASS VII DAMAGE

Figure 4. Repairable Damage - Composite Skins (Sheet 3)

00800403





CLASS XI REPAIR WEIGHTS		
REPAIR SIZE	ZONE	
	A1,B1	D1,E1
2.0R (CLEAN UP)	0.12	0.10
8.5 IN (MAXIMUM)	0.82	0.63

Figure 4. Repairable Damage - Composite Skins (Sheet 4)

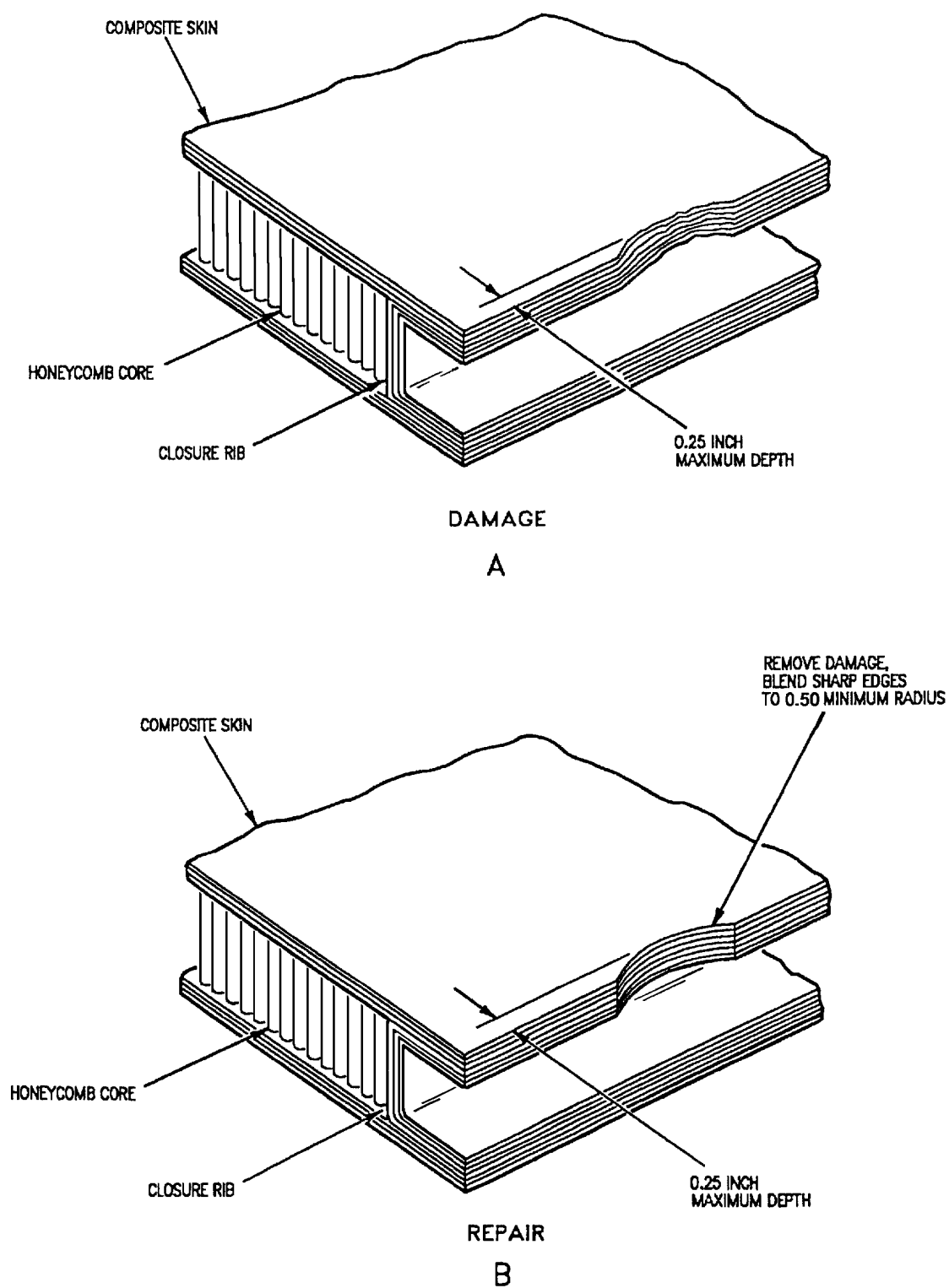


Figure 5. Closure Rib and Skin Damage and Repair

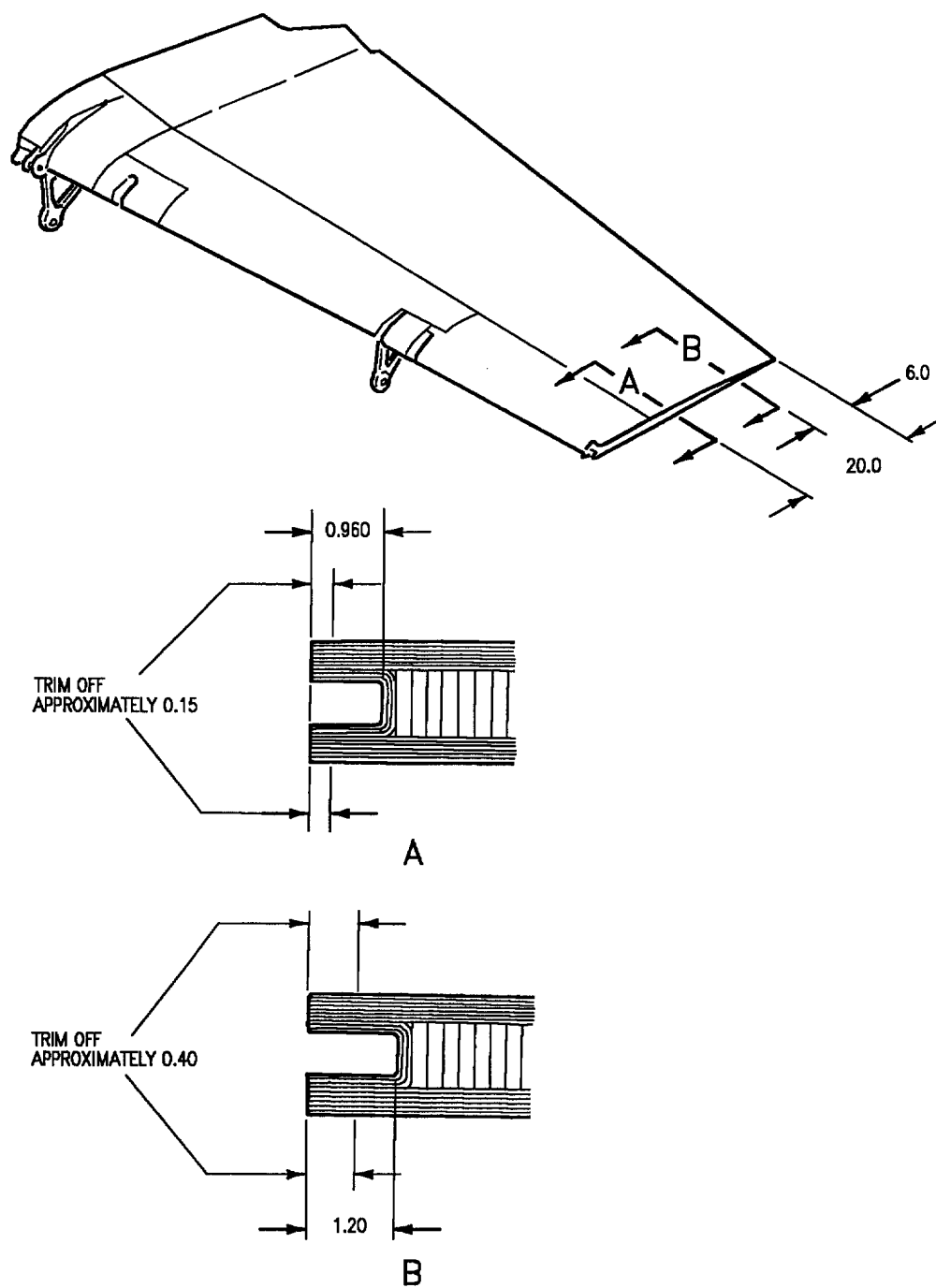
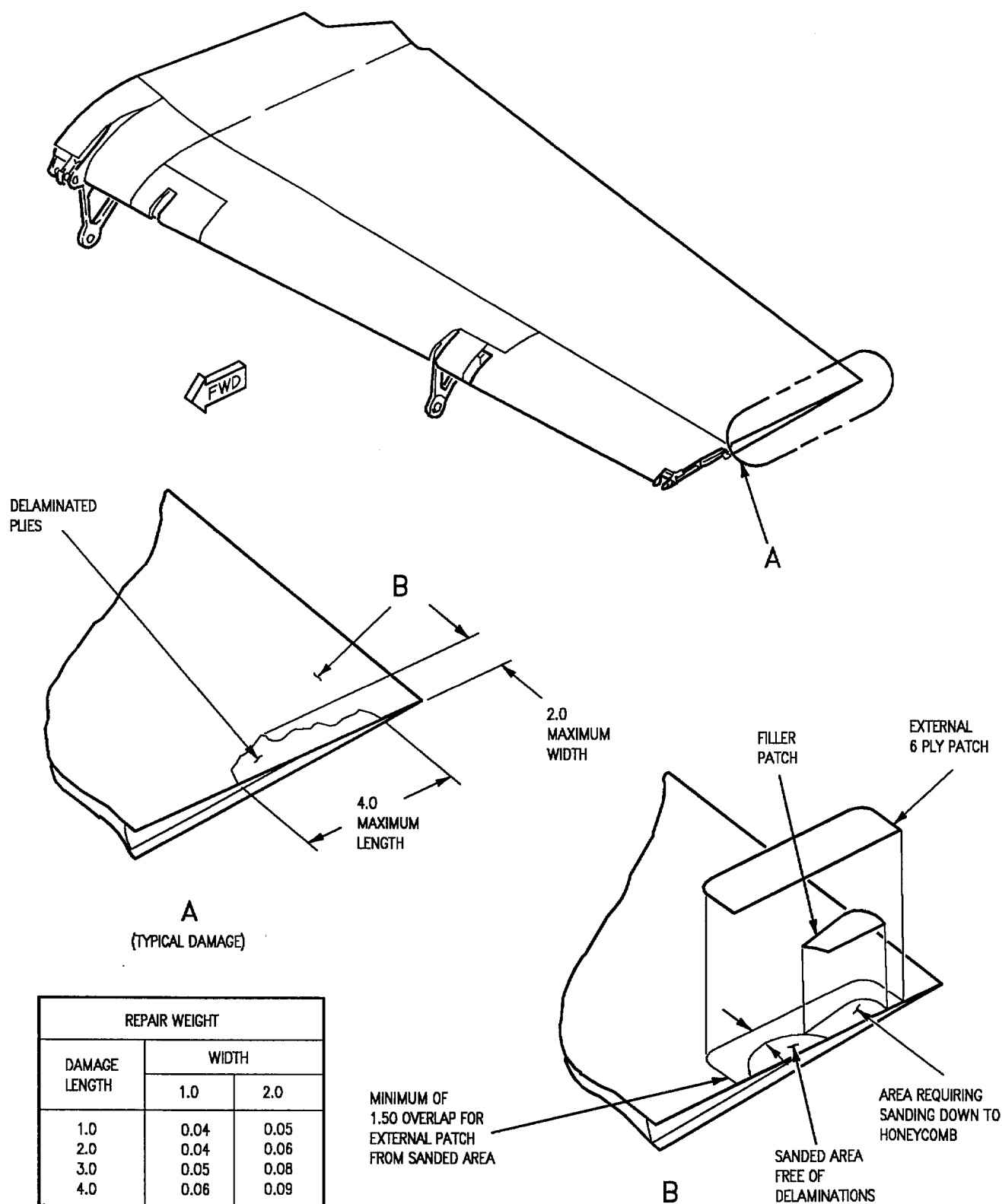


Figure 6. Trimming, 74A180003, Trailing Edge Flap



008007

Figure 7. Upper or Lower Skin Delaminations at Outboard Rib

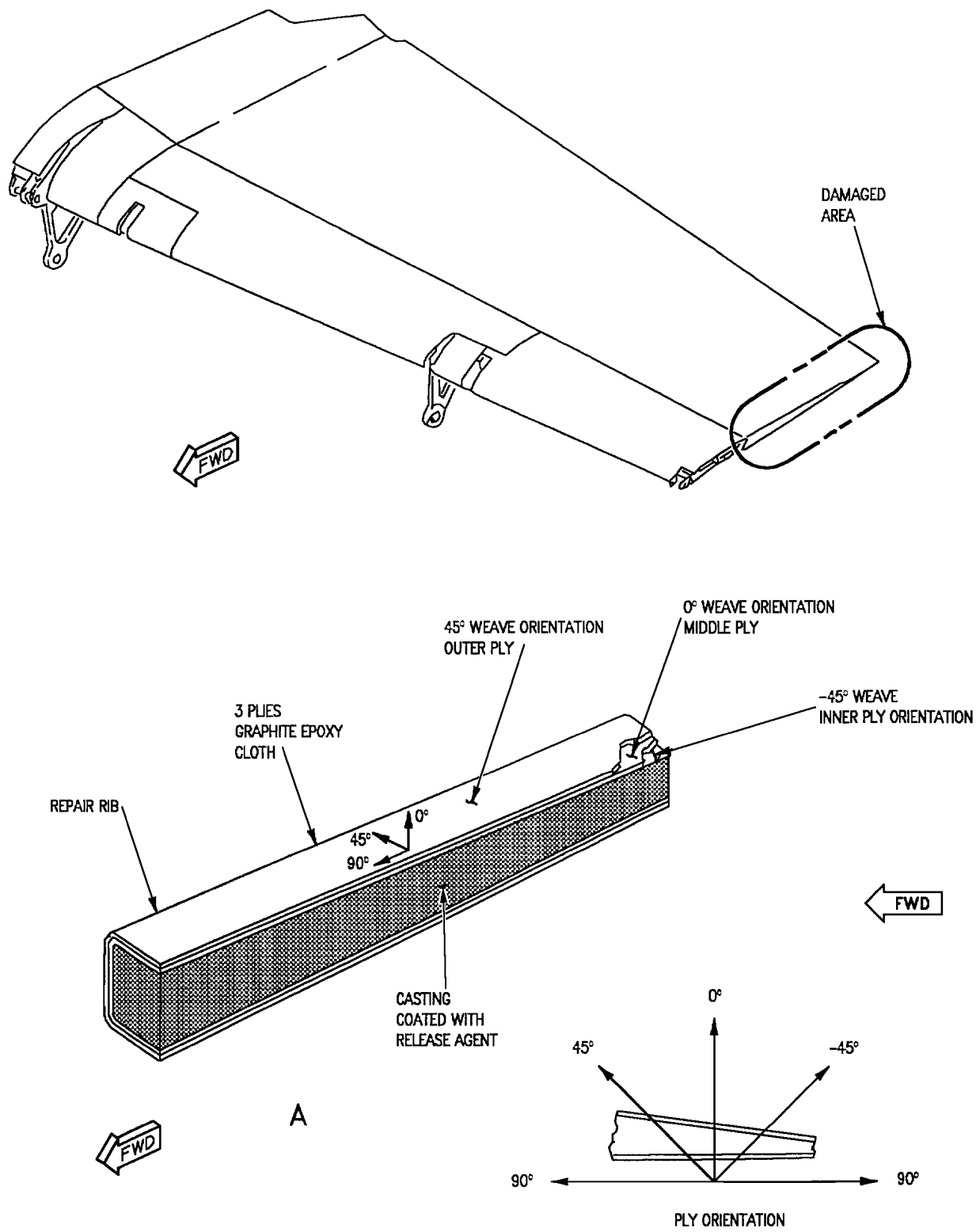


Figure 8. Outboard Rib Repairs (Sheet 1)

00800801

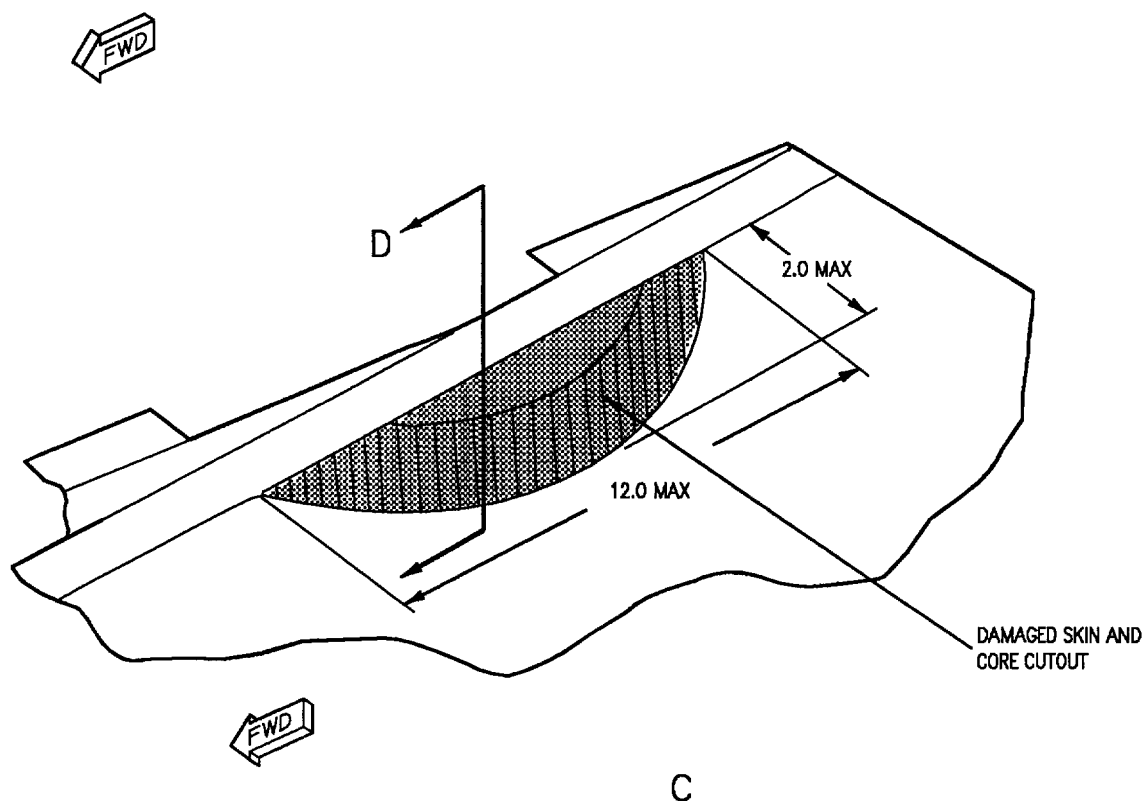
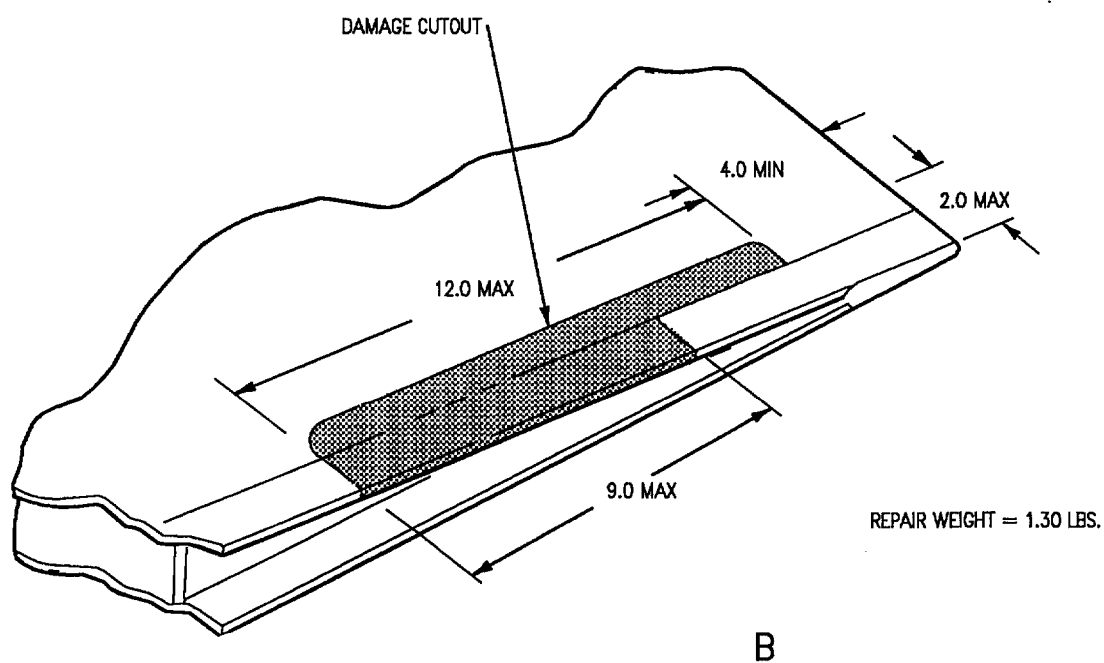


Figure 8. Outboard Rib Repairs (Sheet 2)

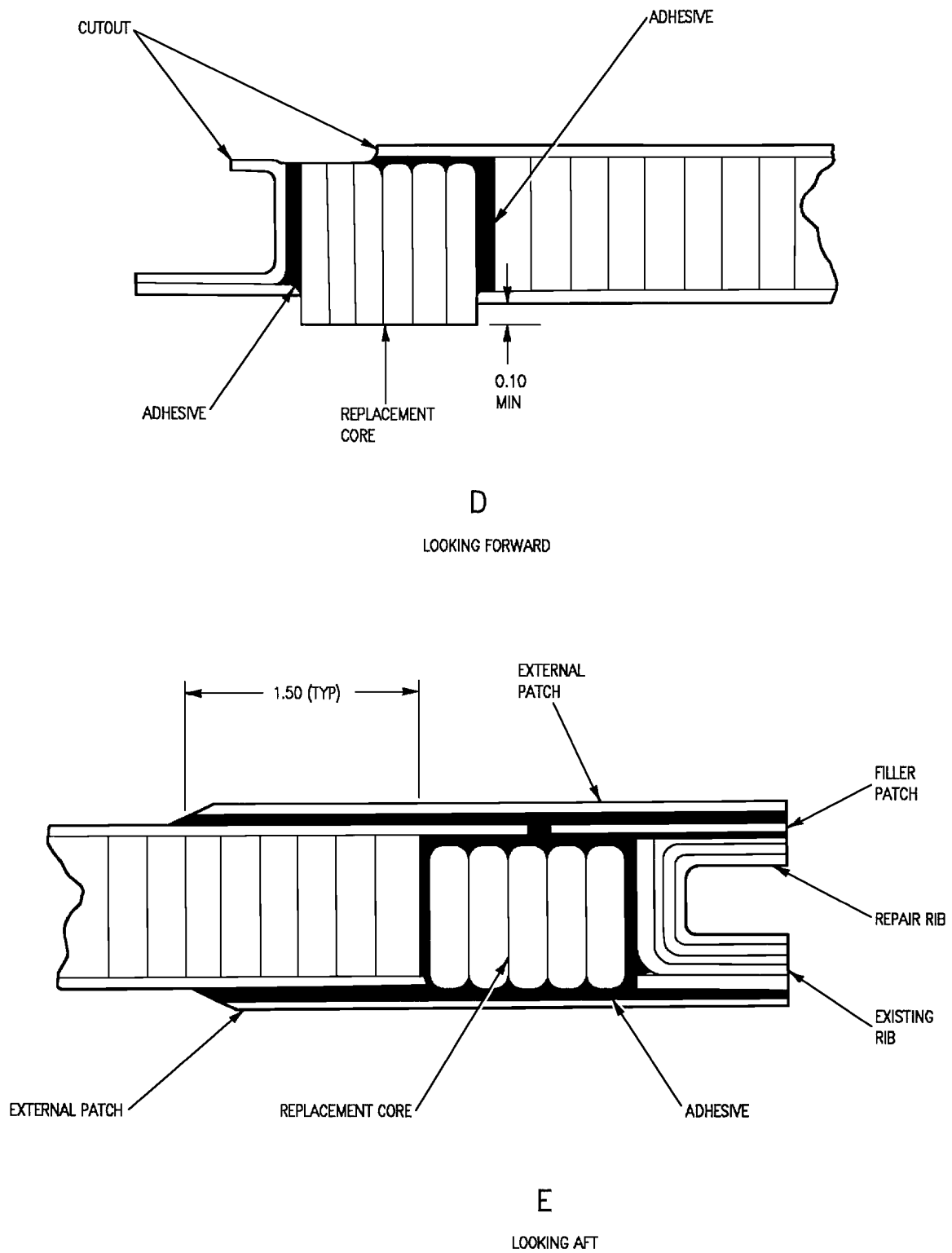


Figure 8. Outboard Rib Repairs (Sheet 3)

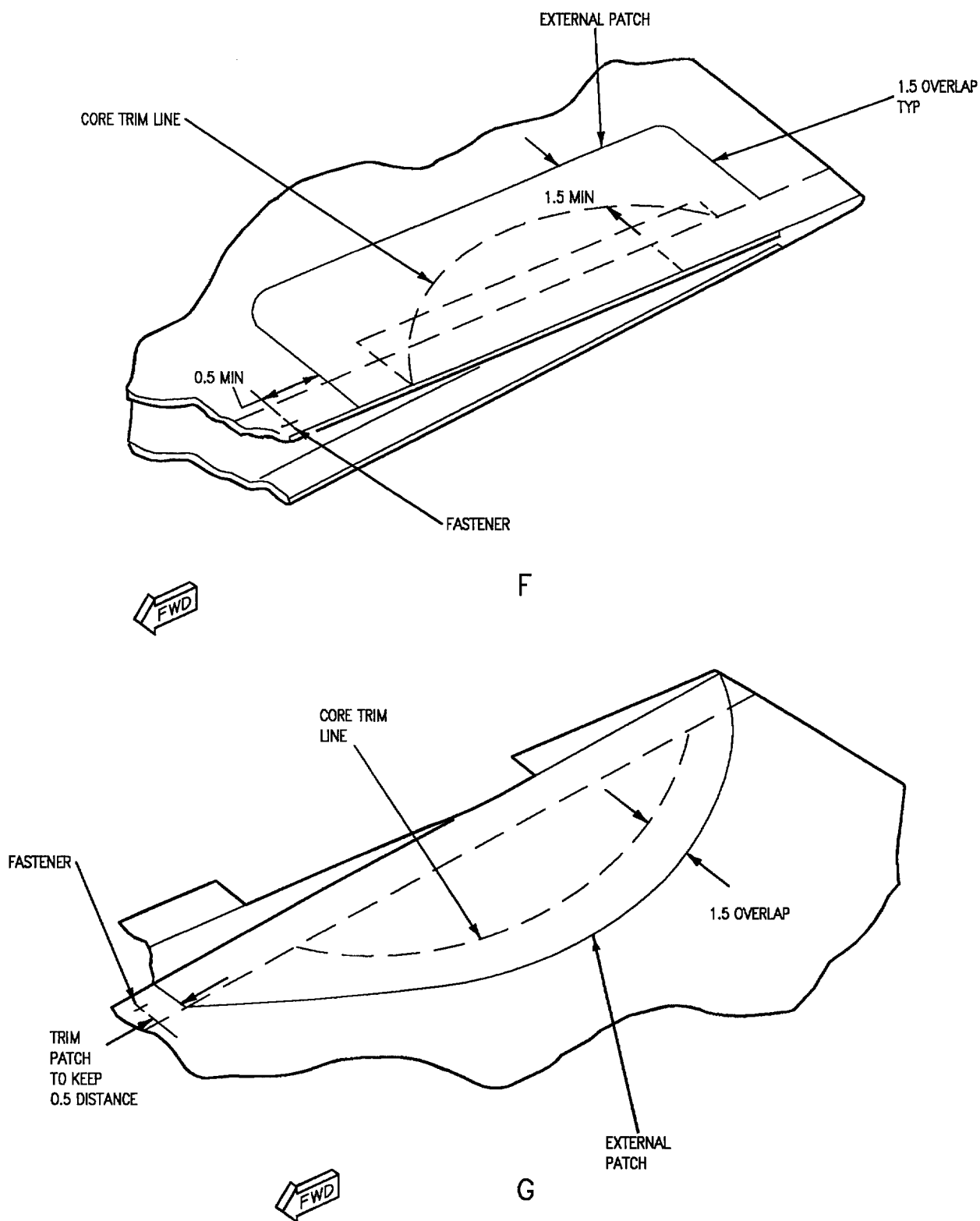


Figure 8. Outboard Rib Repairs (Sheet 4)



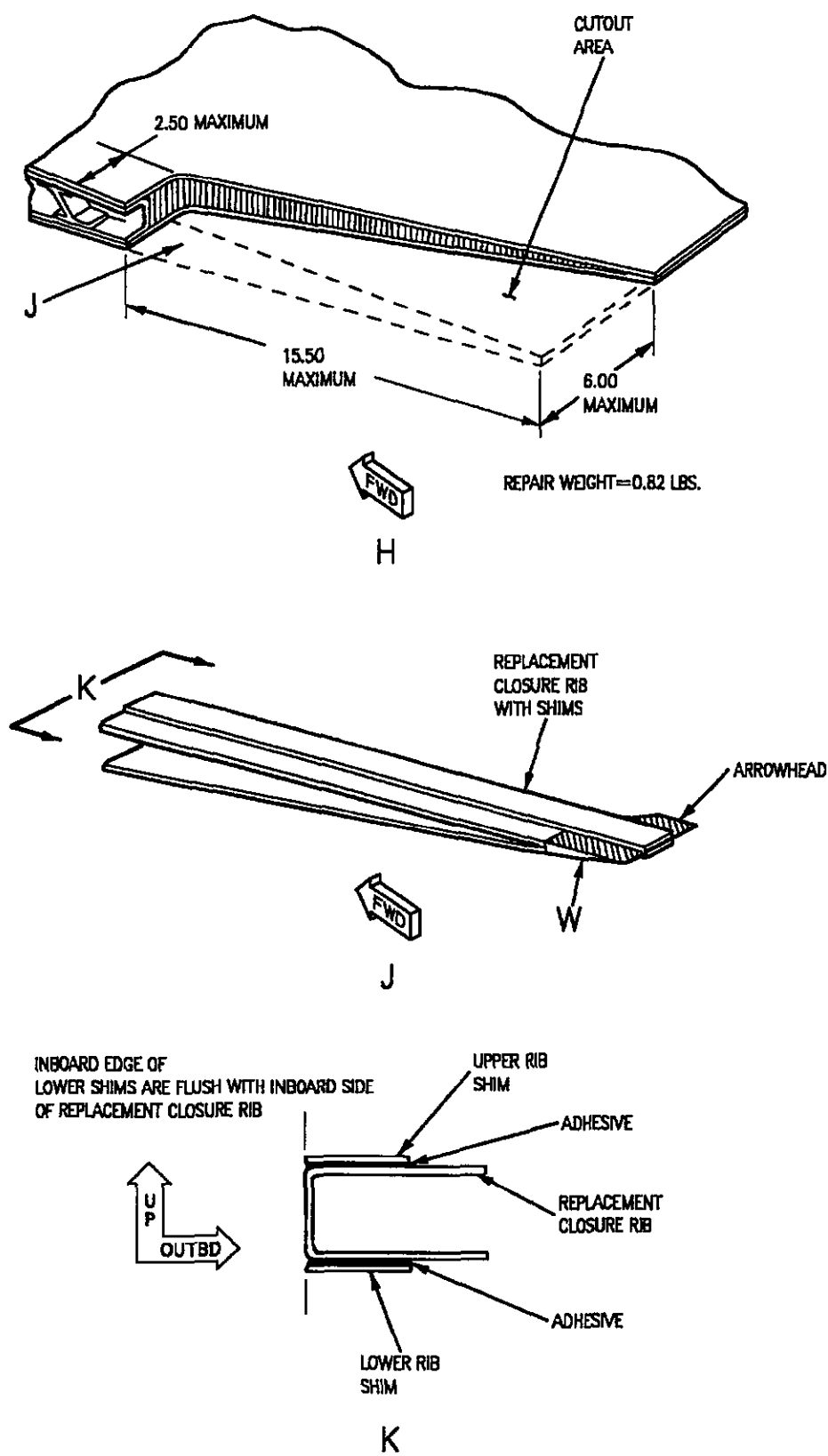


Figure 8. Outboard Rib Repairs (Sheet 5)

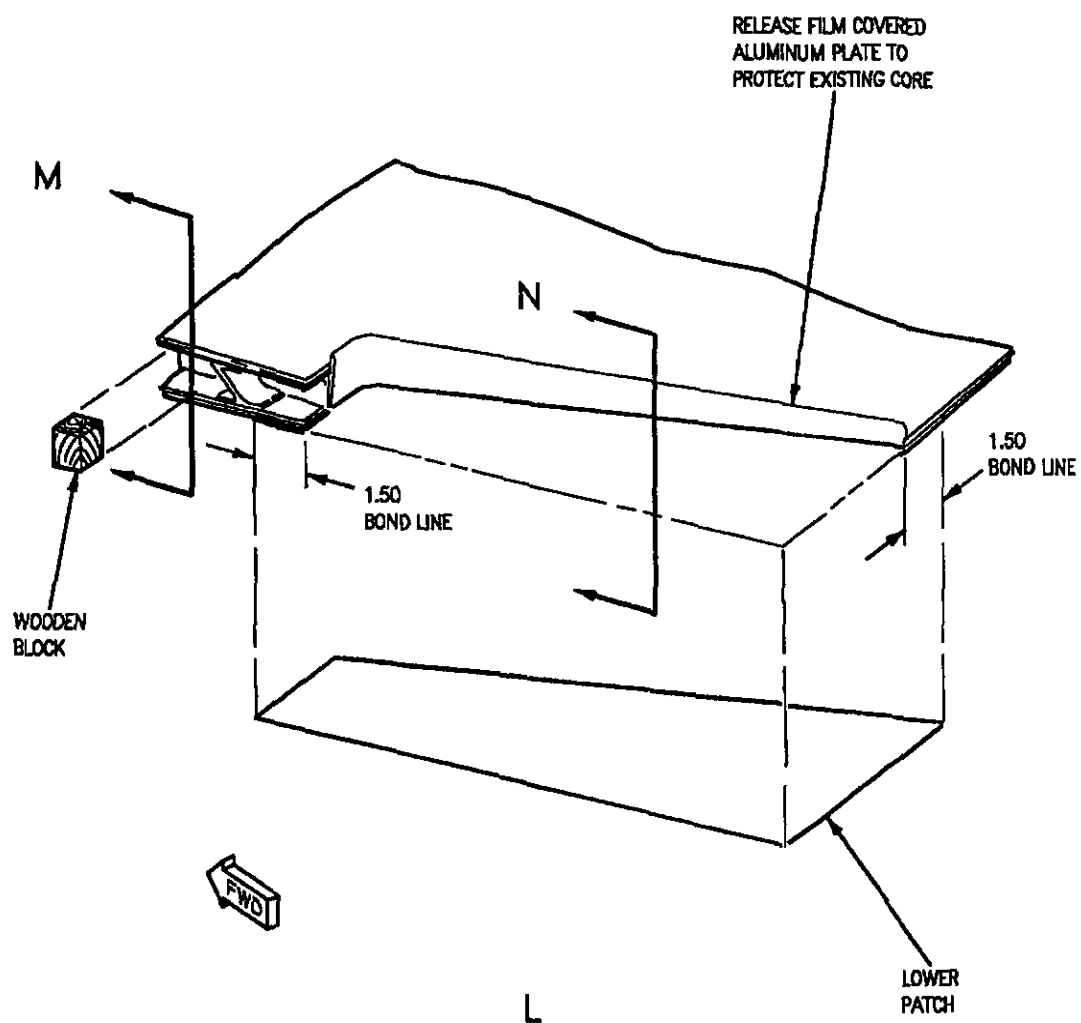


Figure 8. Outboard Rib Repairs (Sheet 6)

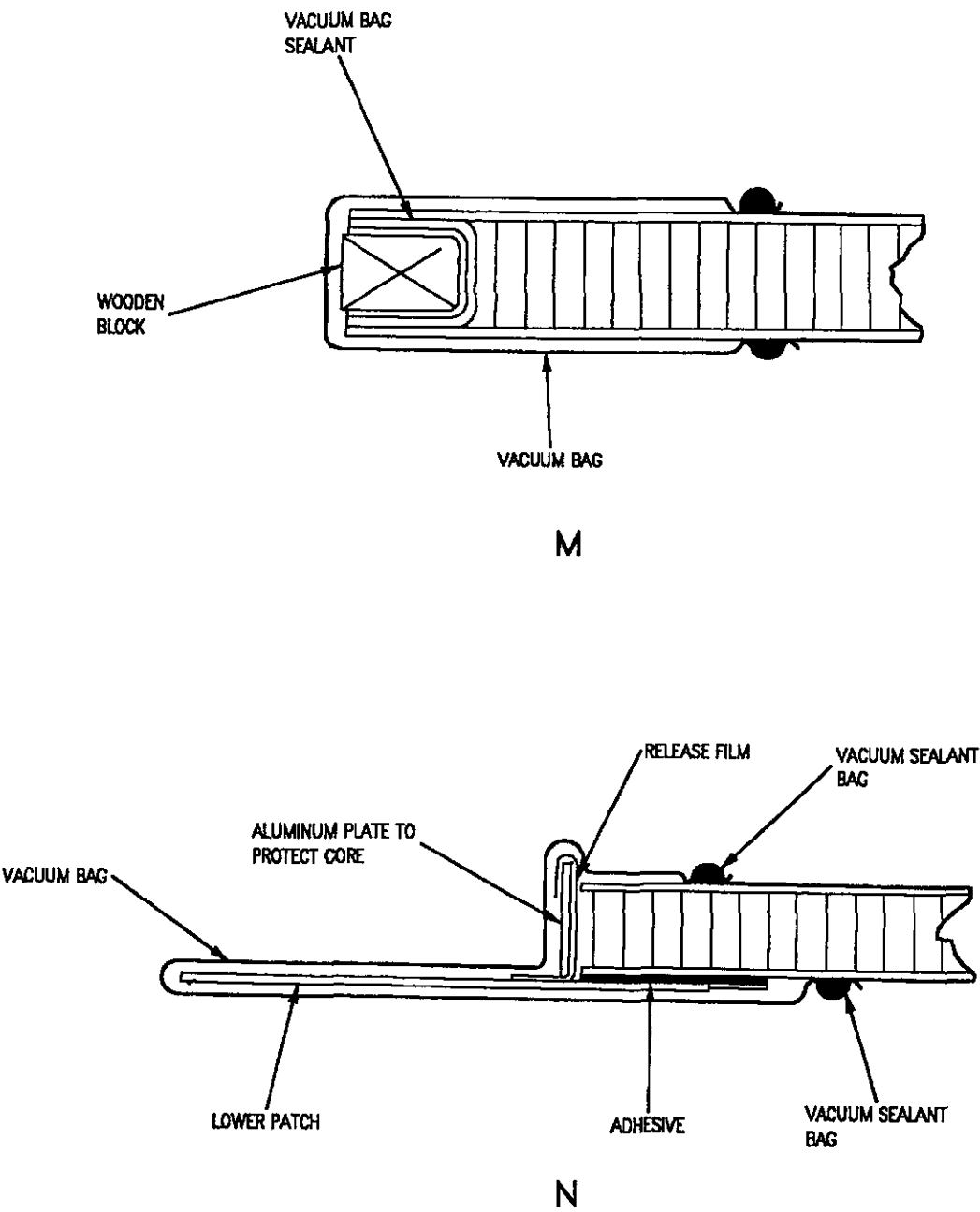
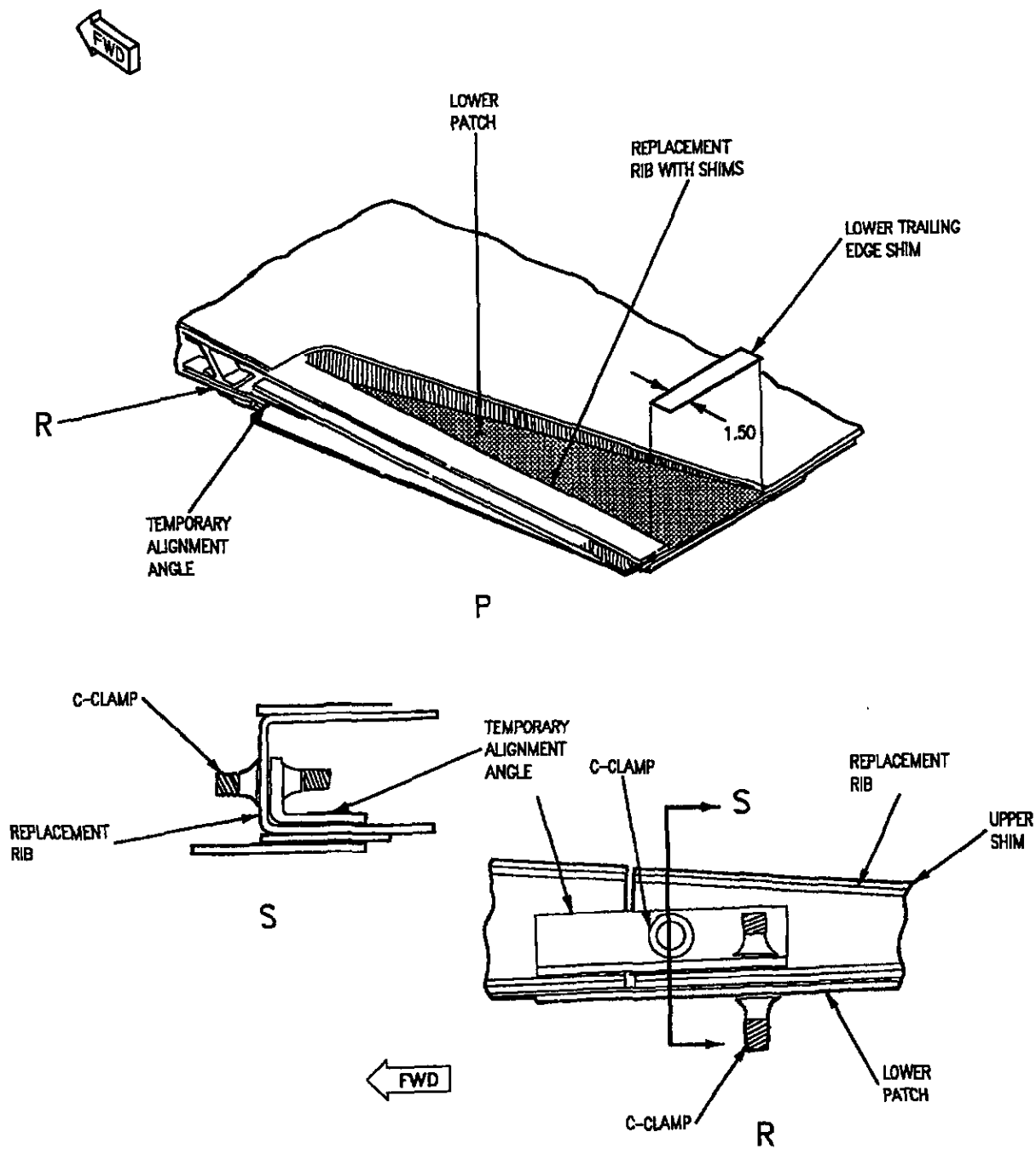


Figure 8. Outboard Rib Repairs (Sheet 7)



00800808

Figure 8. Outboard Rib Repairs (Sheet 8)

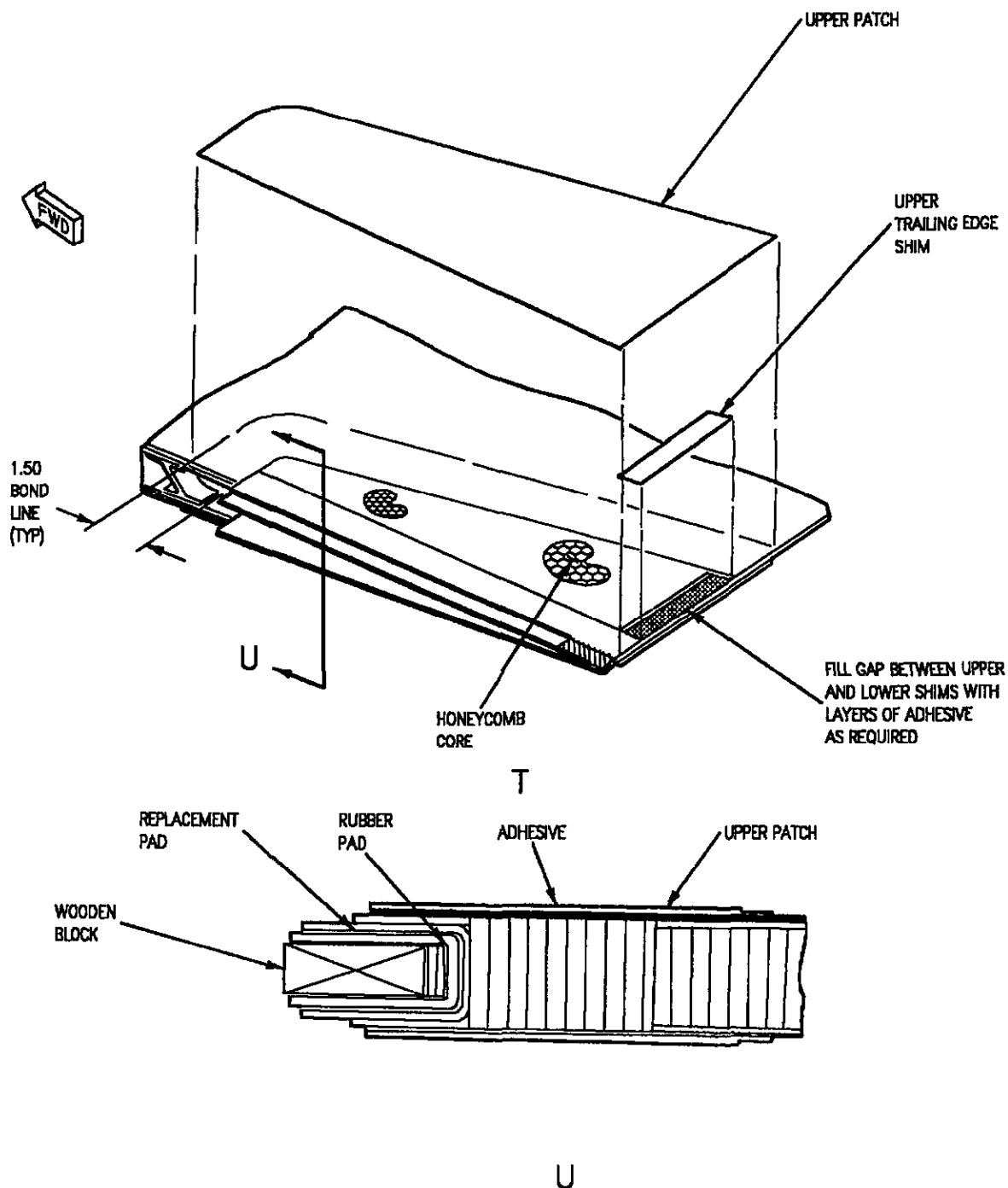


Figure 8. Outboard Rib Repairs (Sheet 9)

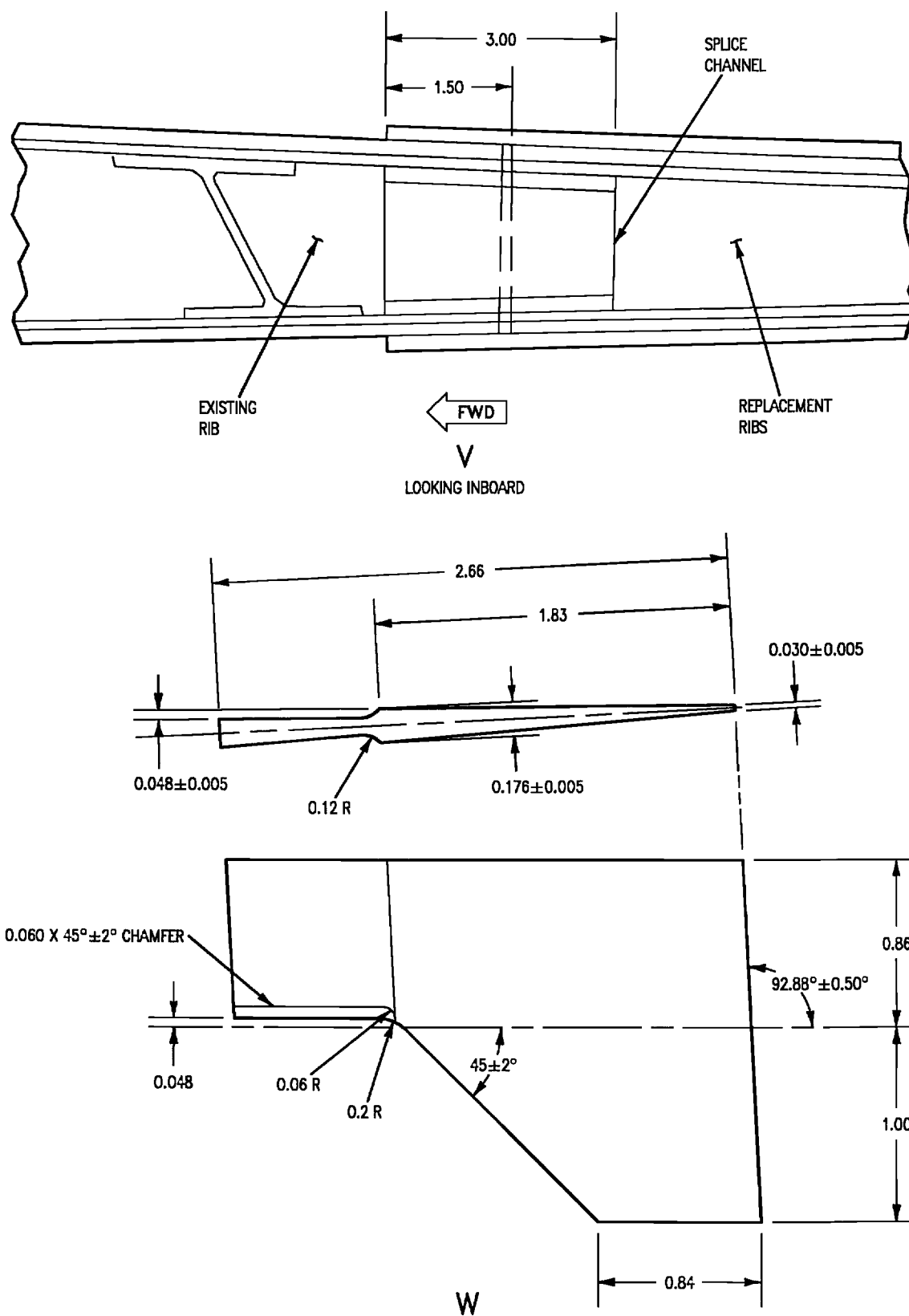


Figure 8. Outboard Rib Repairs (Sheet 10)

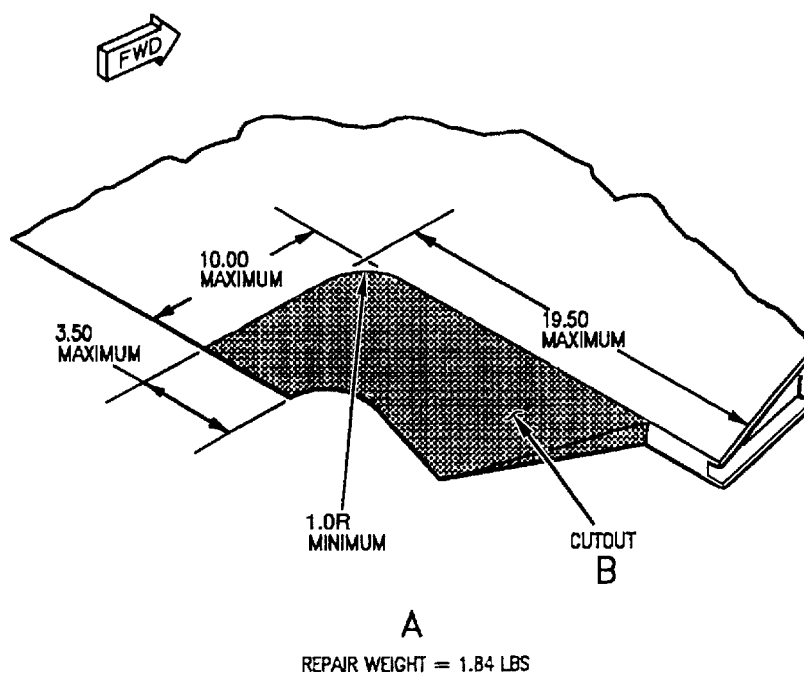
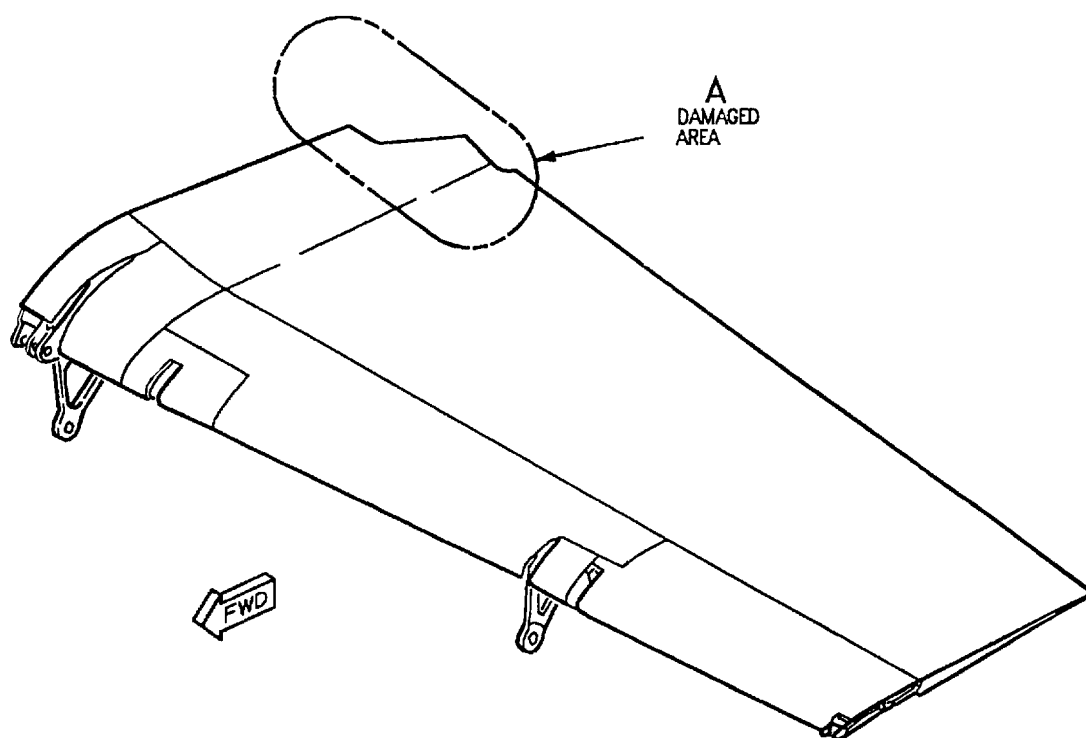


Figure 9. Inboard Aft Corner Repair (Sheet 1)

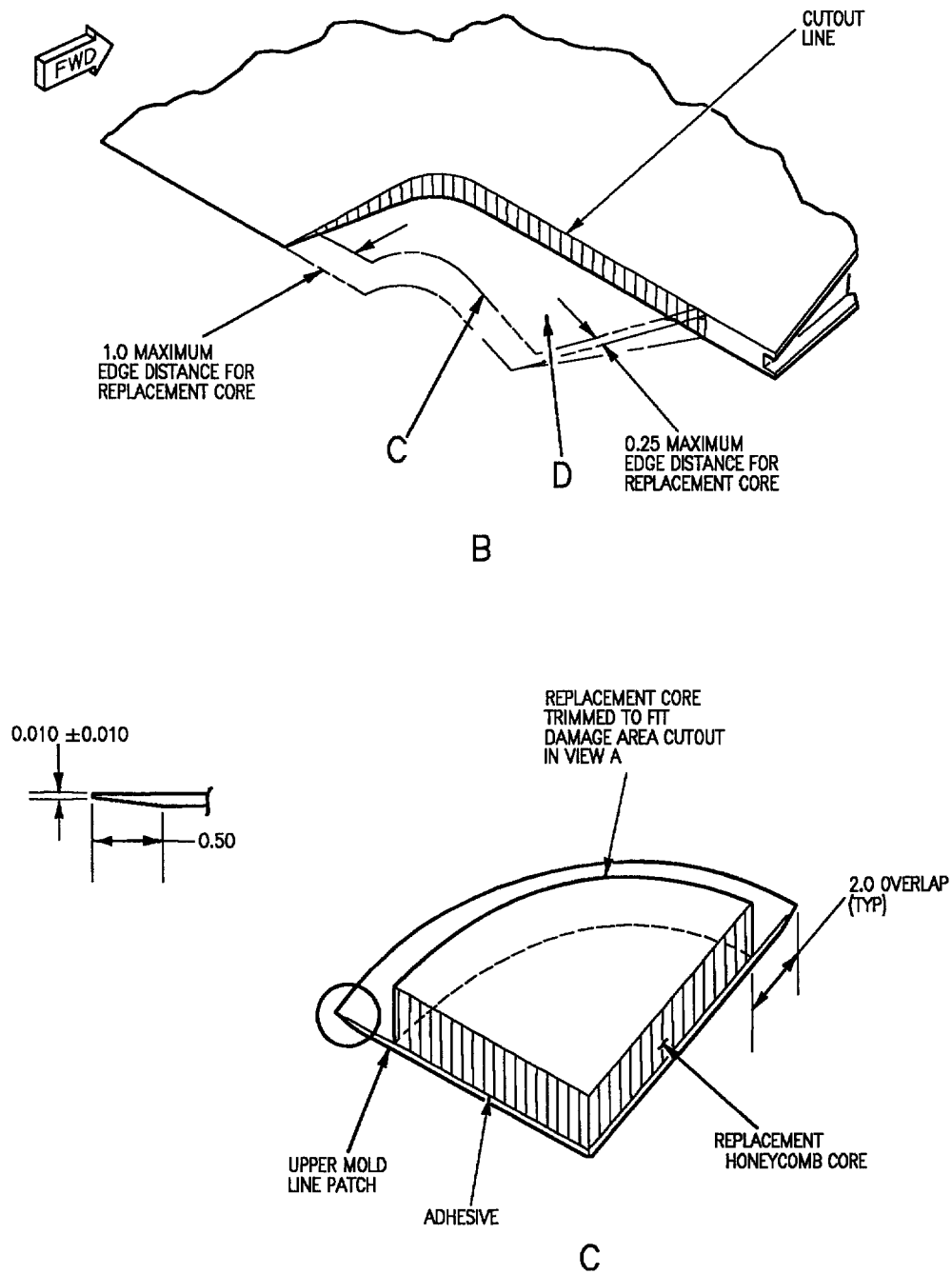
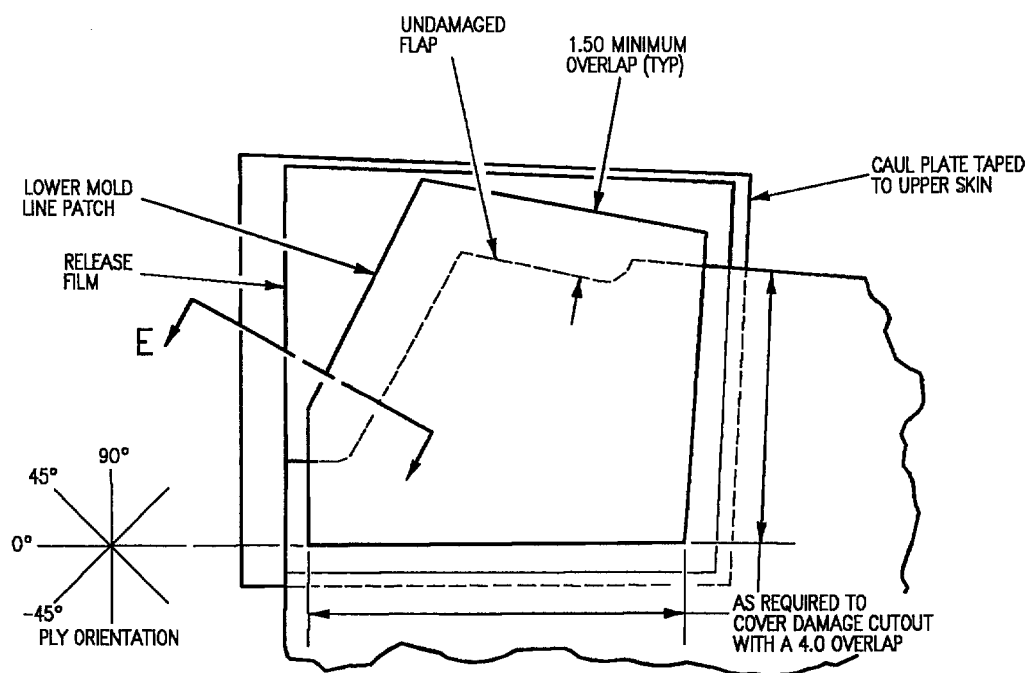


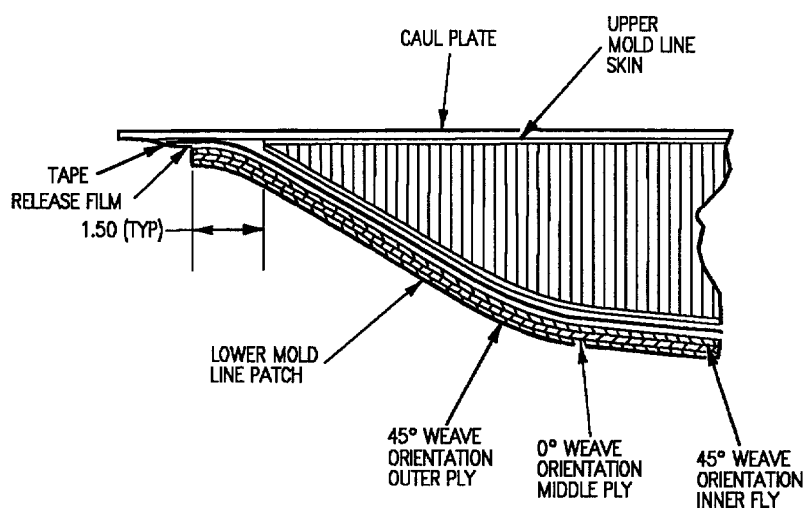
Figure 9. Inboard Aft Corner Repair (Sheet 2)





D

LOOKING AT LOWER MOLD LINE



E

Figure 9. Inboard Aft Corner Repair (Sheet 3)

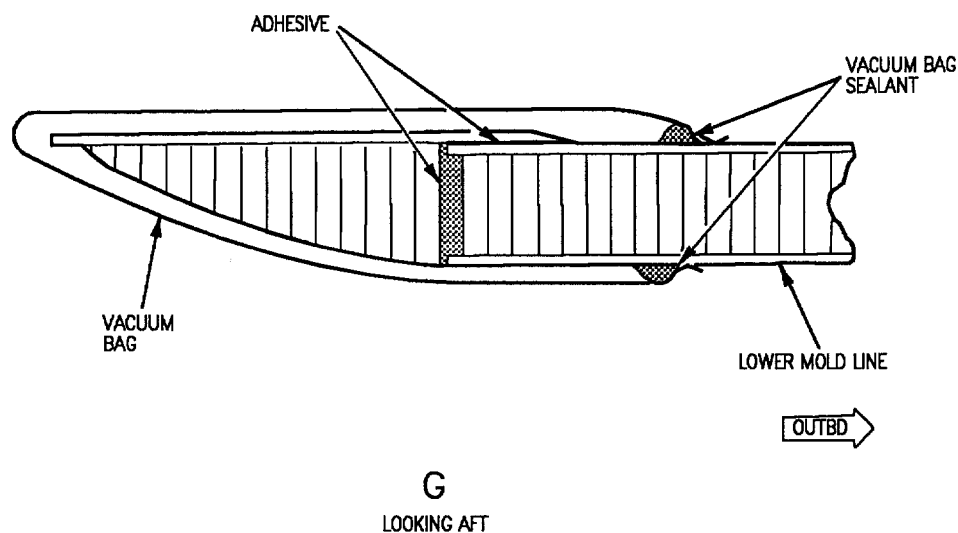
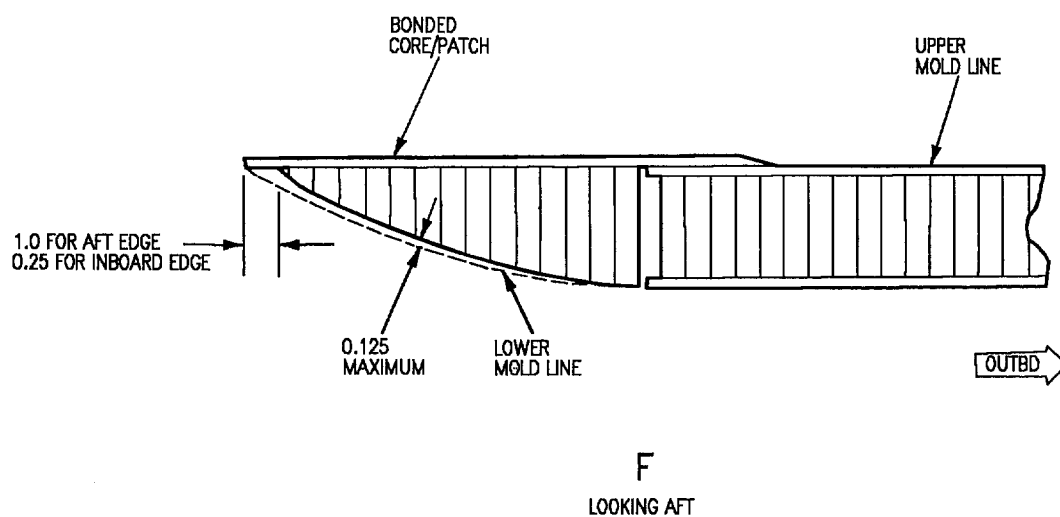


Figure 9. Inboard Aft Corner Repair (Sheet 4)

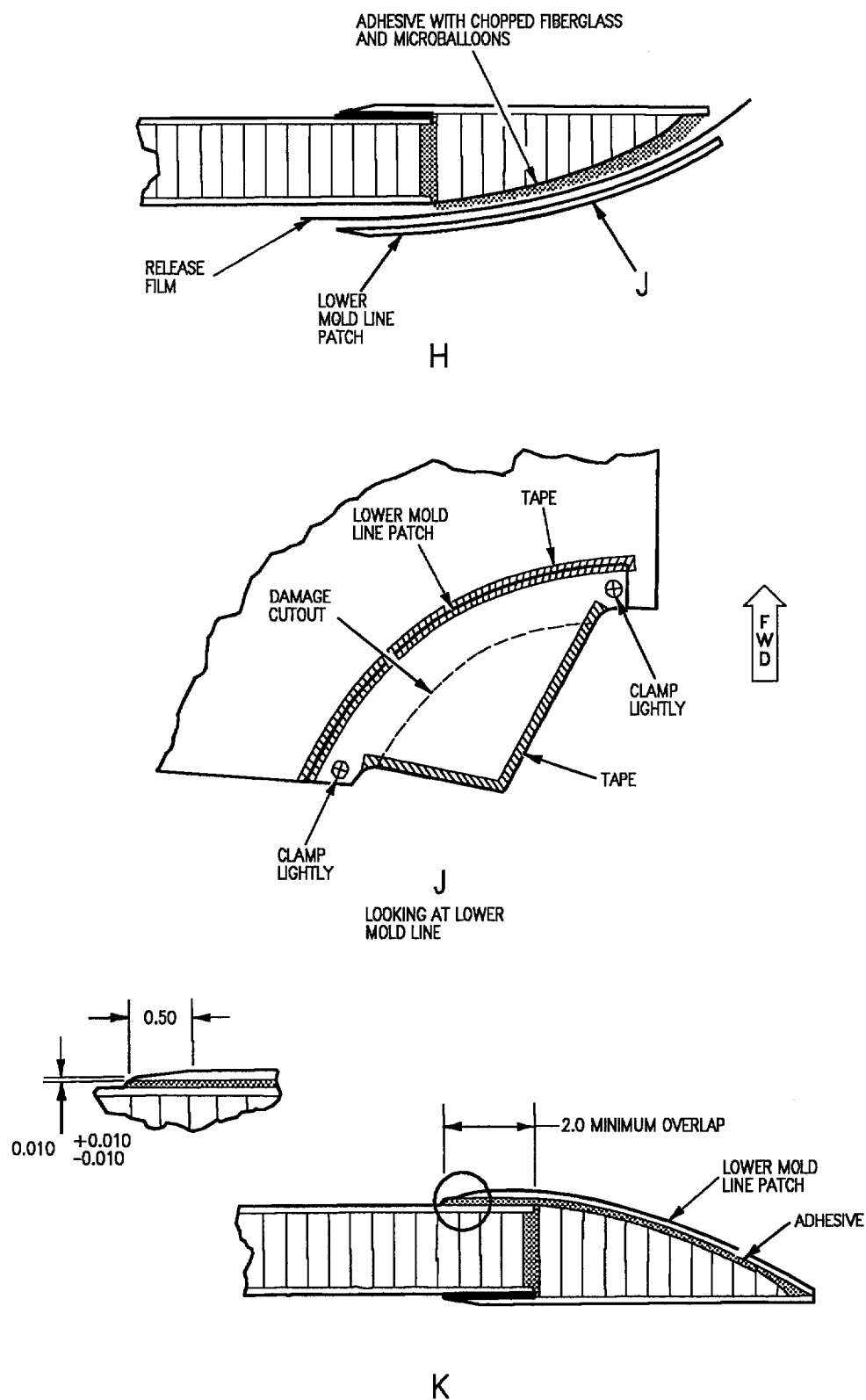
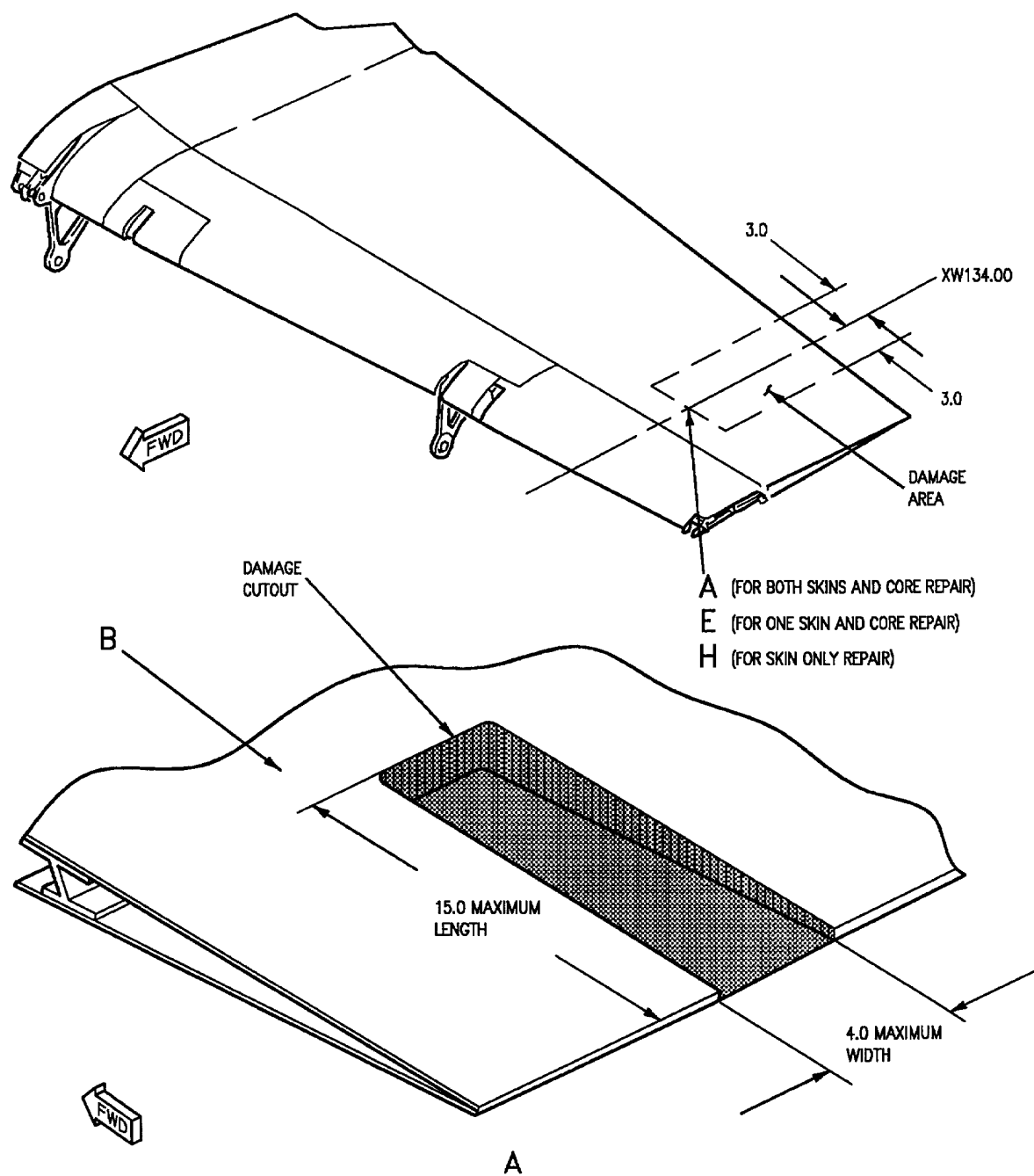


Figure 9. Inboard Aft Corner Repair (Sheet 5)



REPAIR WEIGHT						
LENGTH OF DAMAGE	DAMAGE TO SKIN ONLY		DAMAGE TO SINGLE SKIN AND CORE		DAMAGE TO DOUBLE SKIN AND CORE	
	W=2	W=4	W=2	W=4	W=2	W=4
5.0	0.18	0.24	0.30	0.34	0.45	0.61
10.0	0.28	0.37	0.50	0.73	0.72	0.98
15.0	0.38	0.50	0.70	1.03	0.99	1.34

Figure 10. Outboard Trailing Edge Damage Repair (Sheet 1)

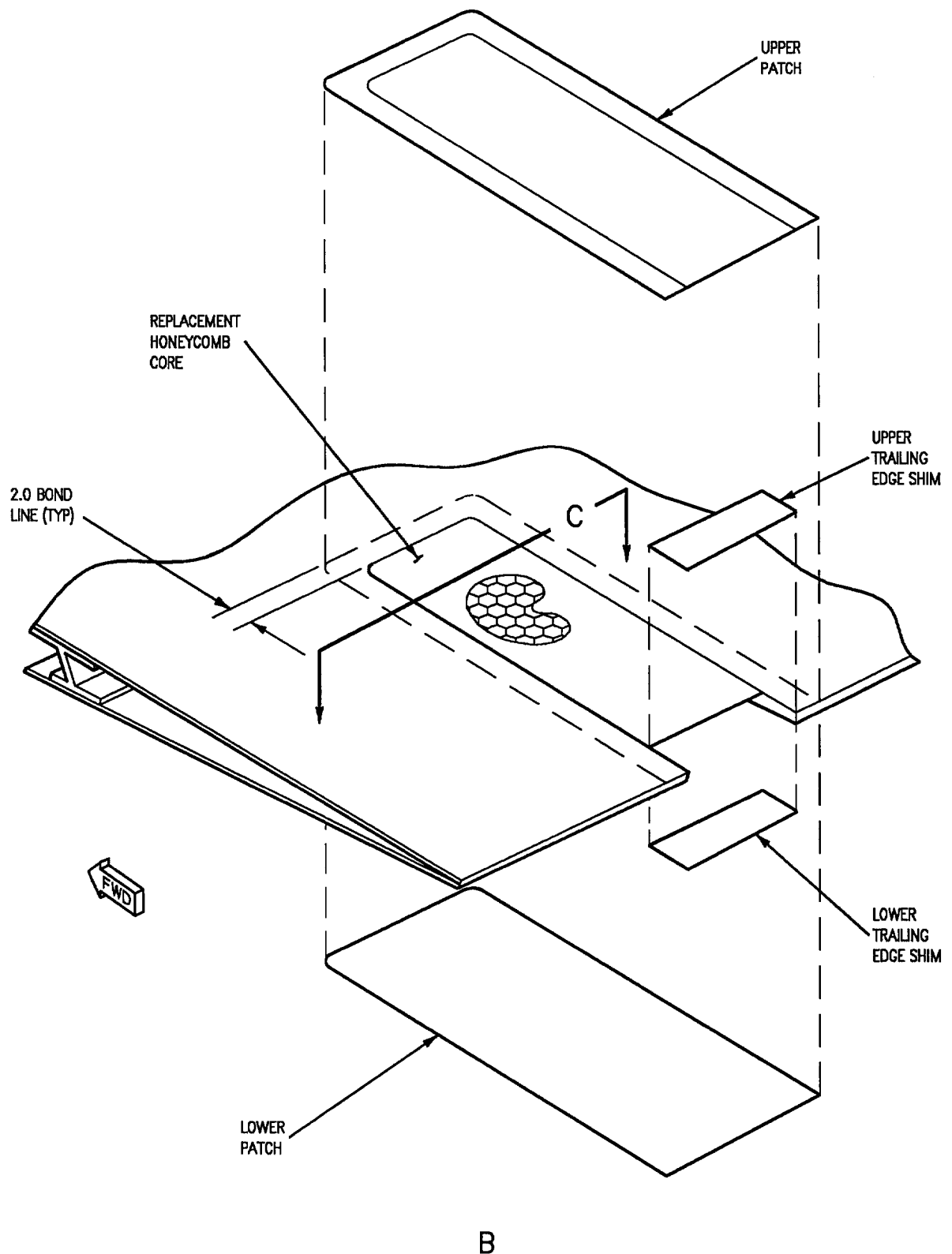


Figure 10. Outboard Trailing Edge Damage Repair (Sheet 2)



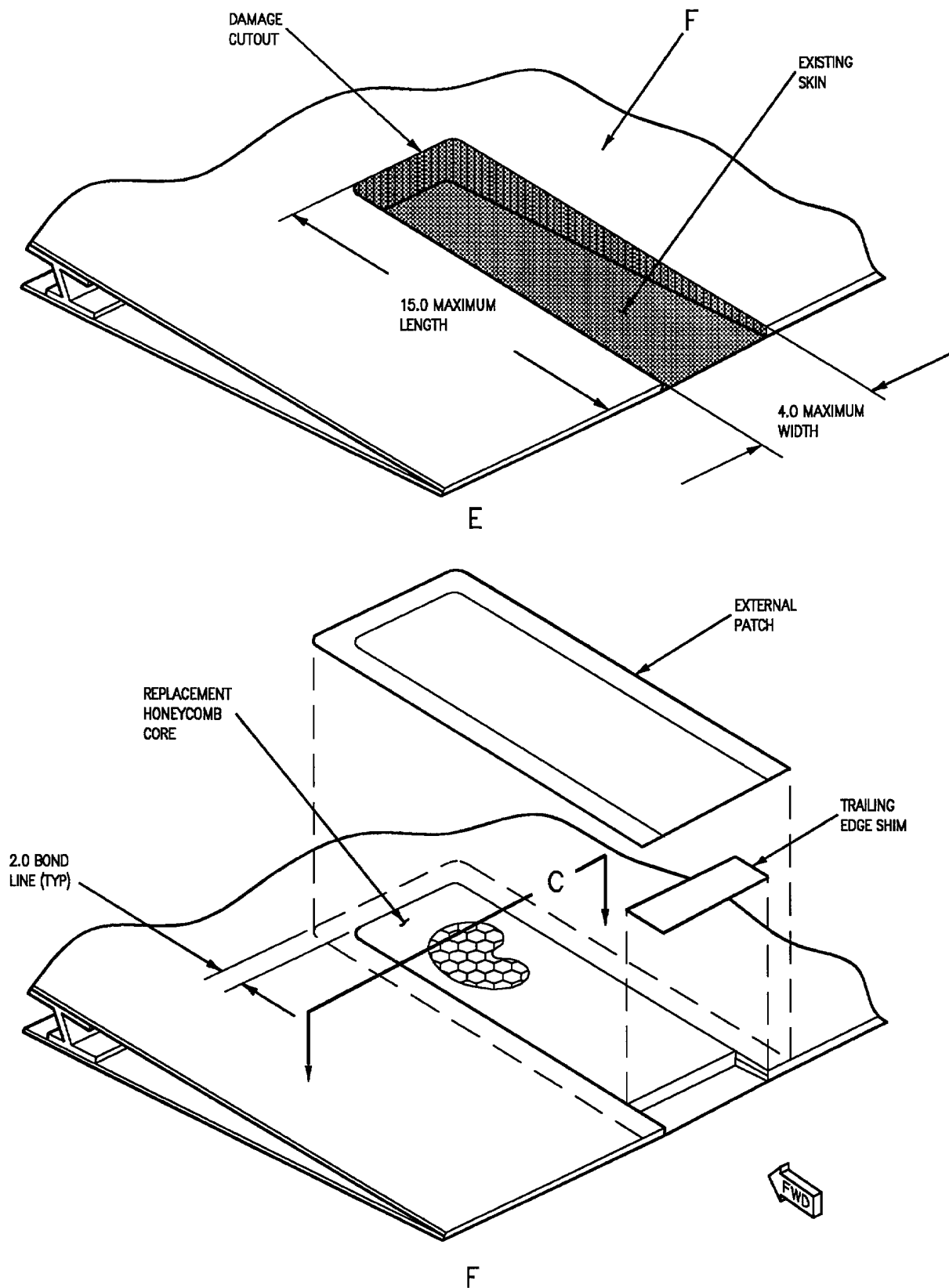


Figure 10. Outboard Trailing Edge Damage Repair (Sheet 4)

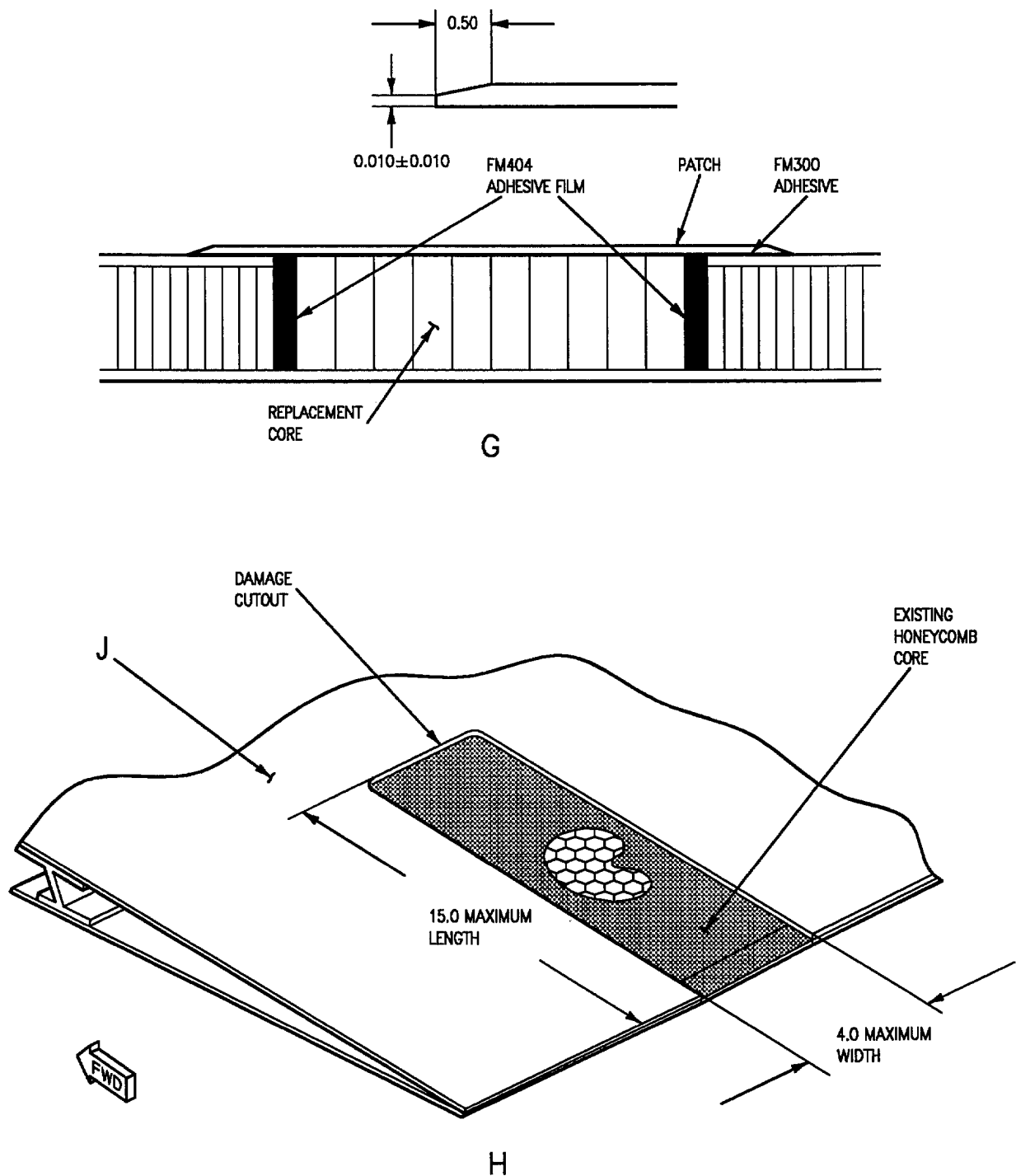


Figure 10. Outboard Trailing Edge Damage Repair (Sheet 5)



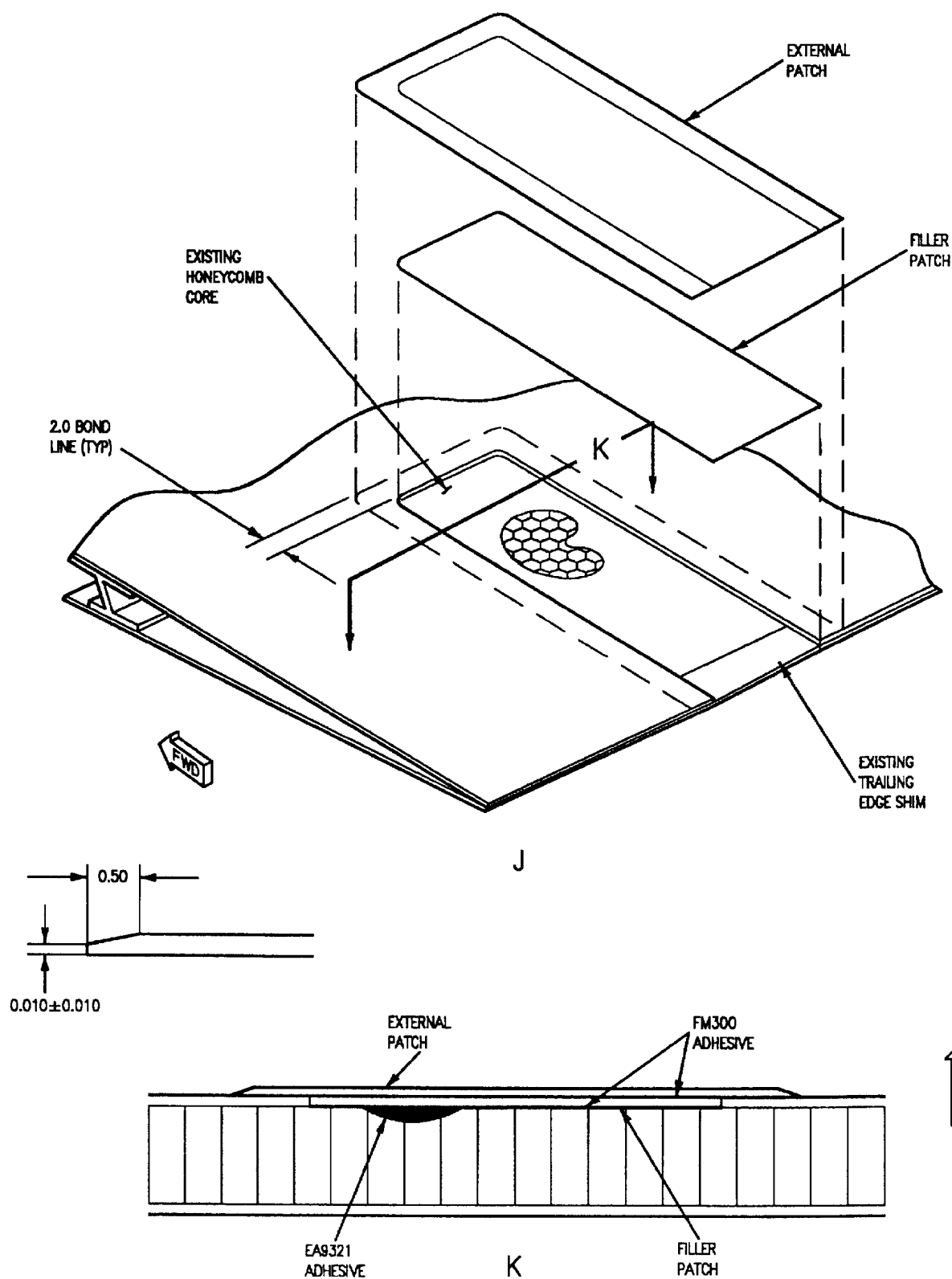


Figure 10. Outboard Trailing Edge Damage Repair (Sheet 6)

08001006

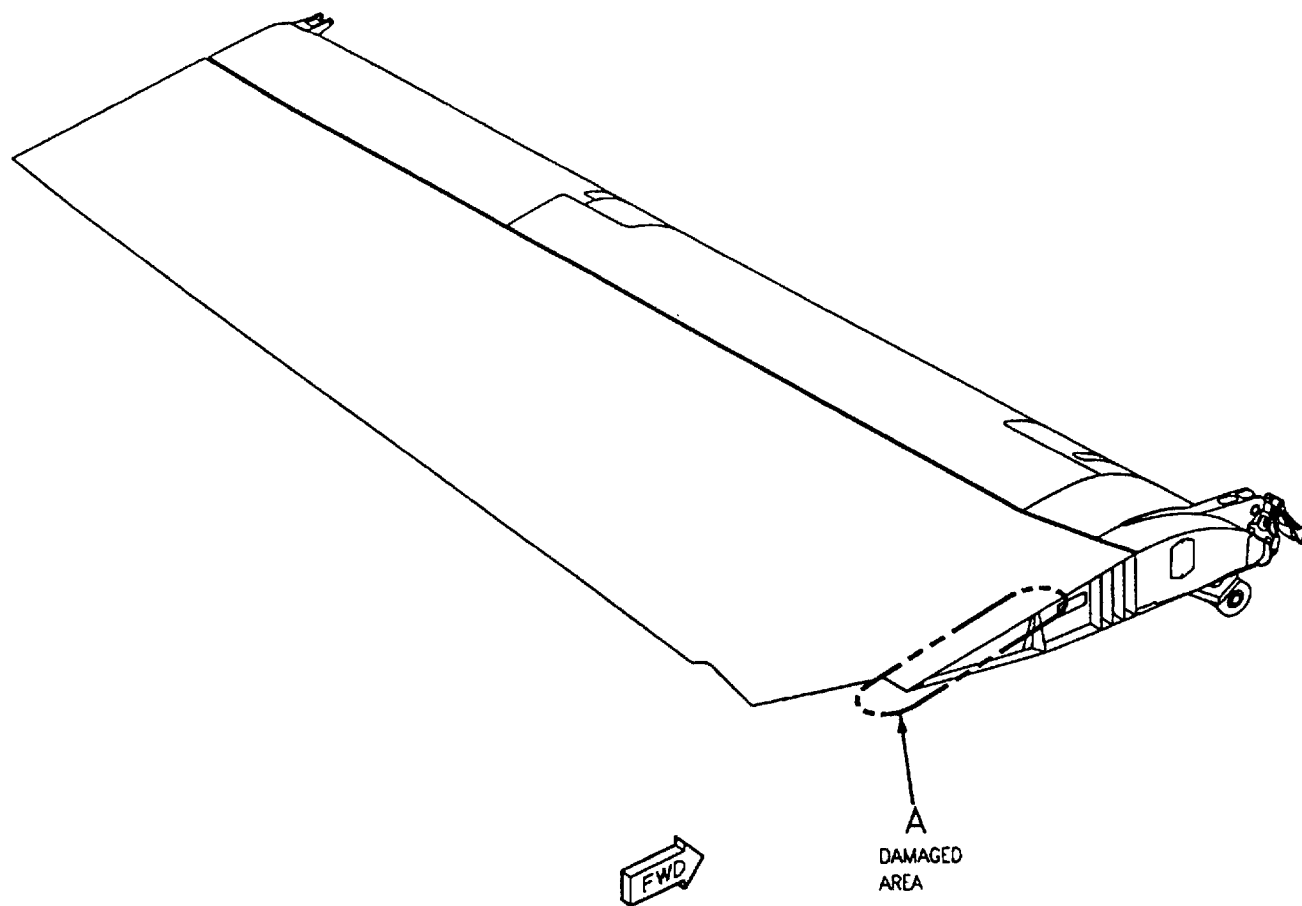


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 1)

08001101

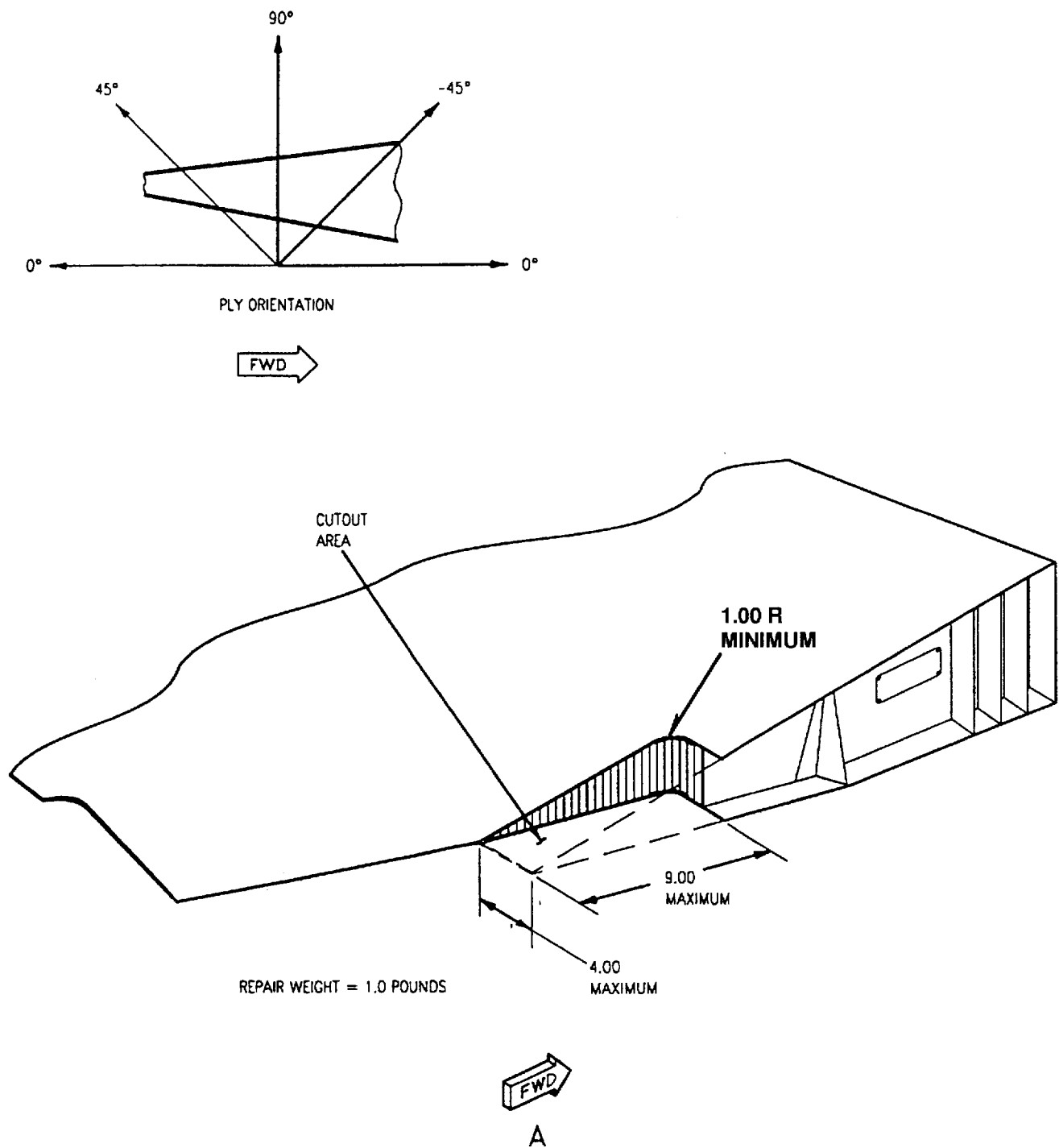


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 2)

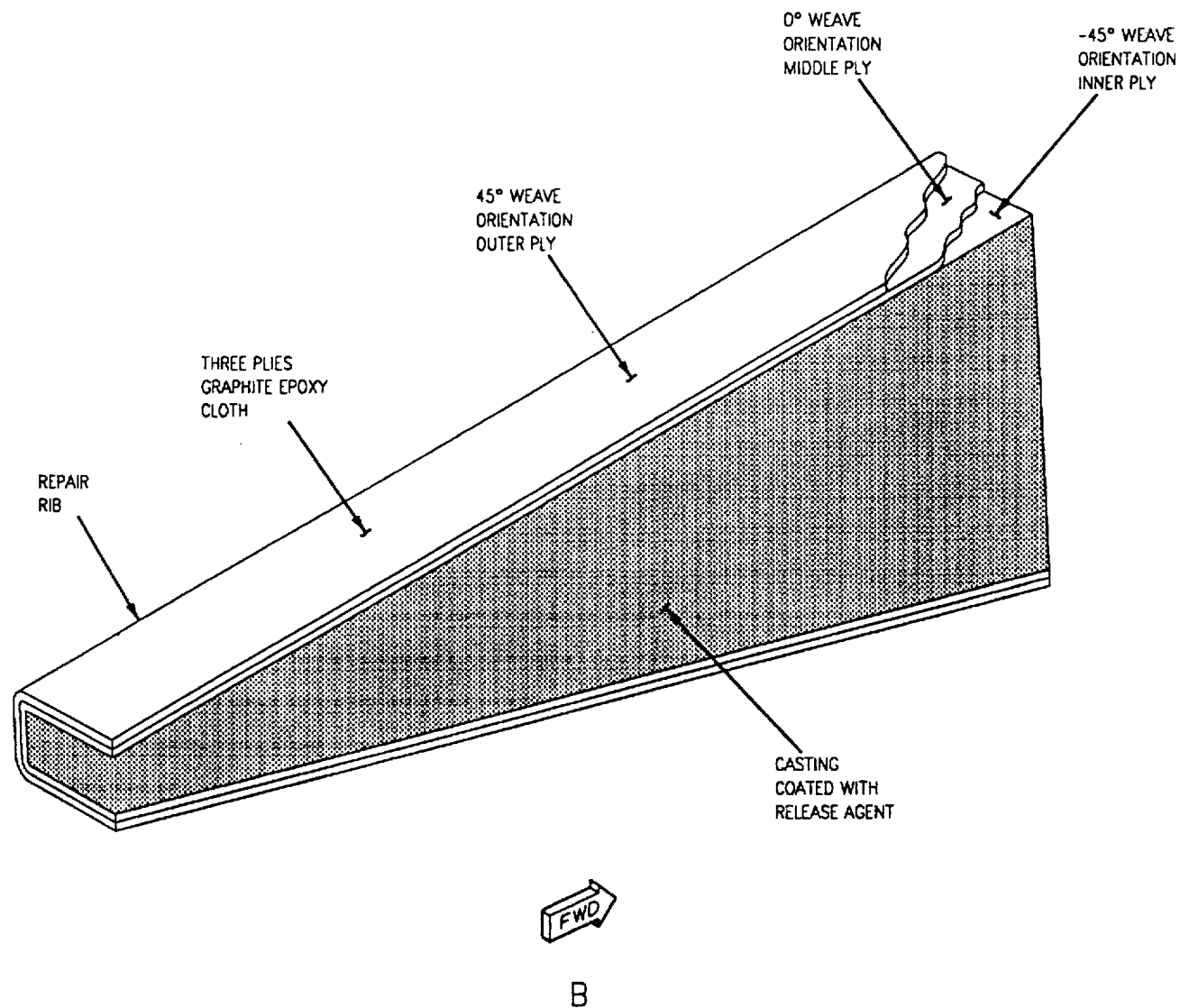


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 3)

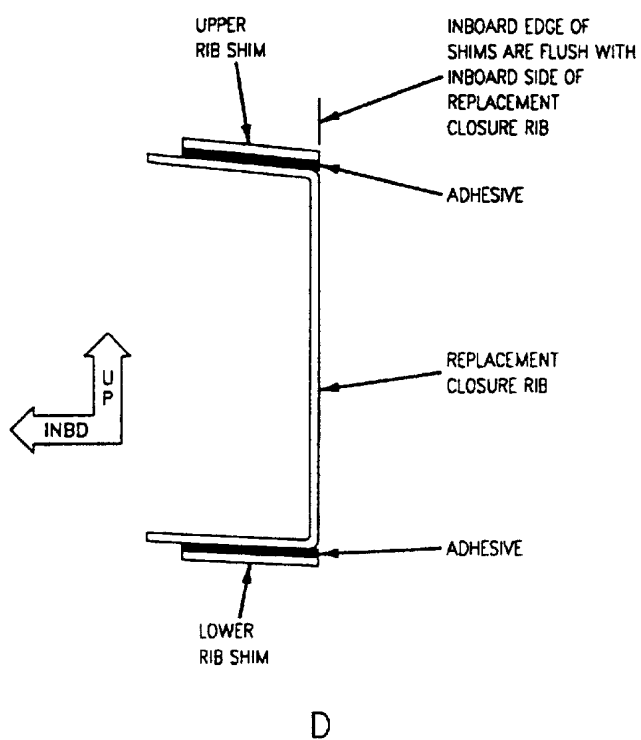
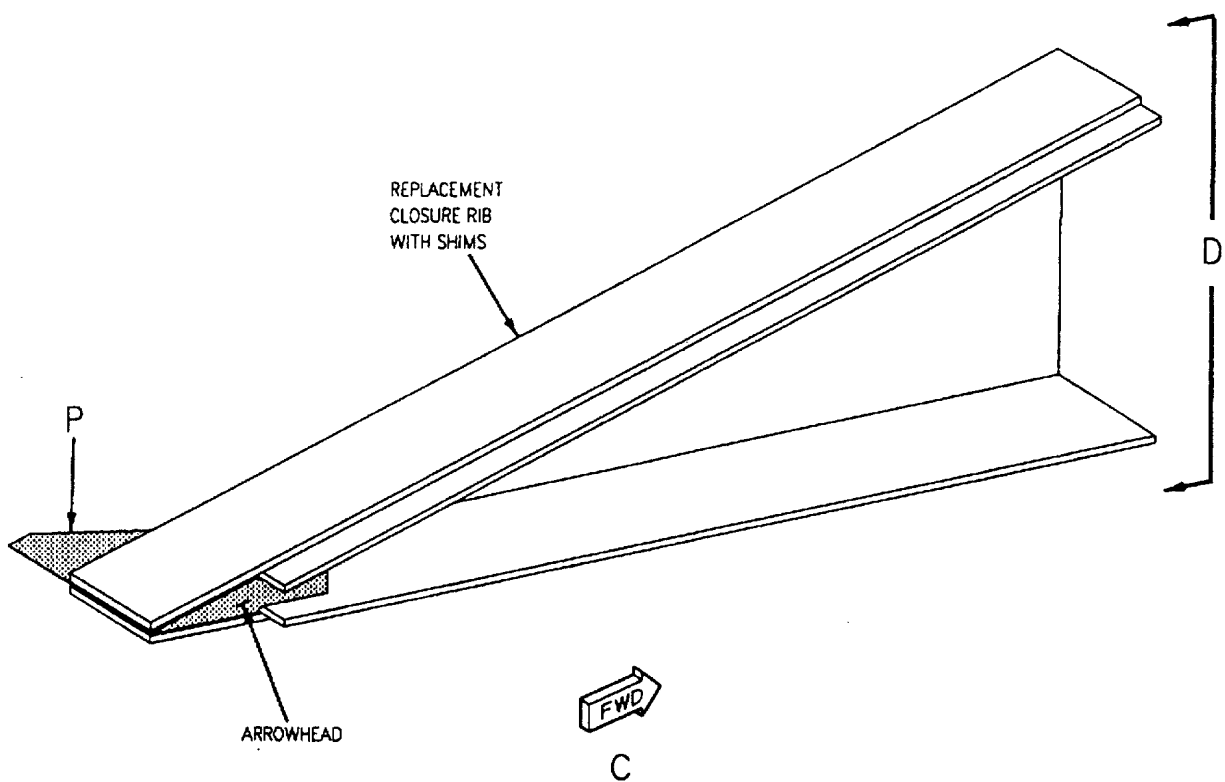


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 4)

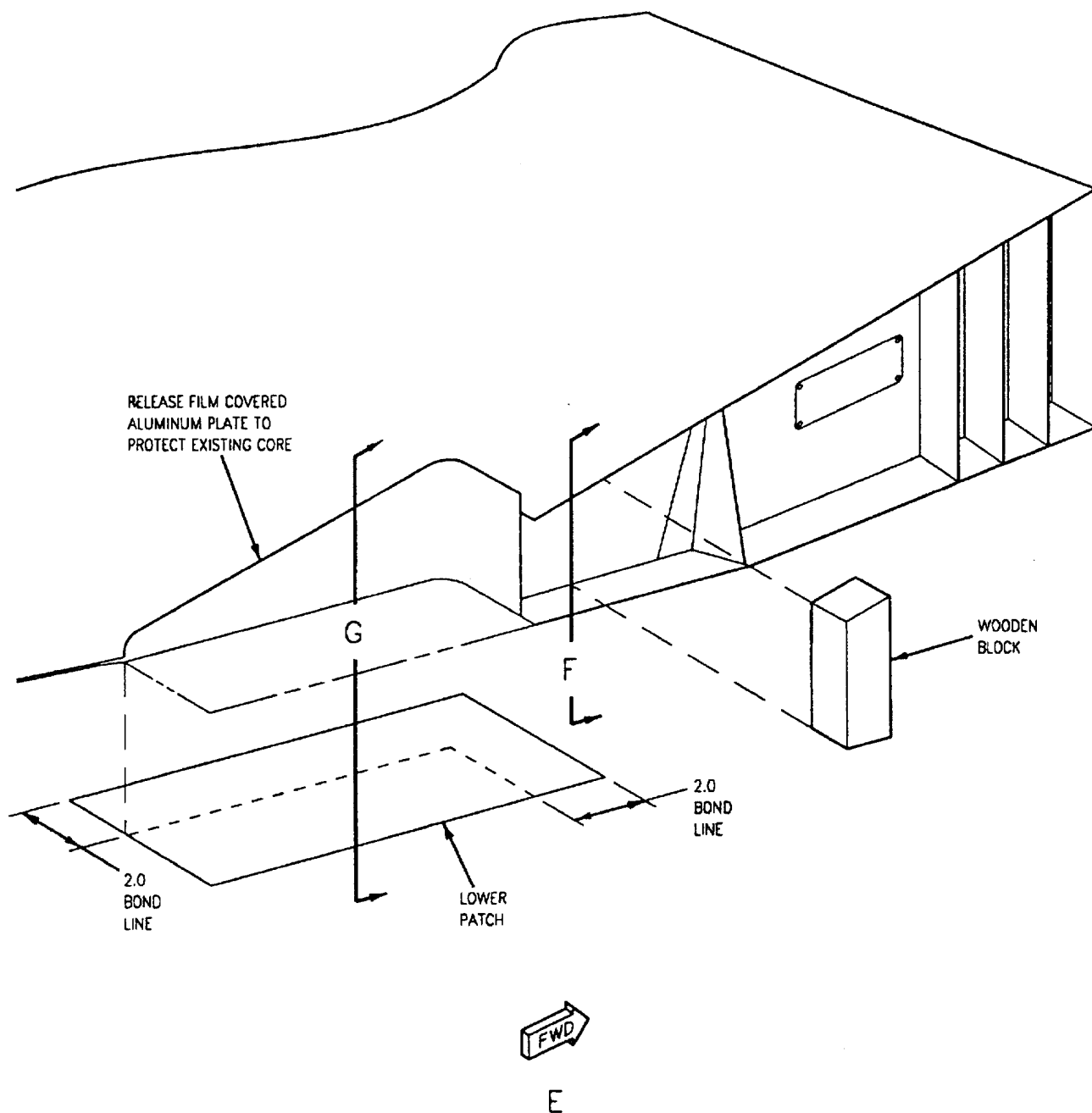
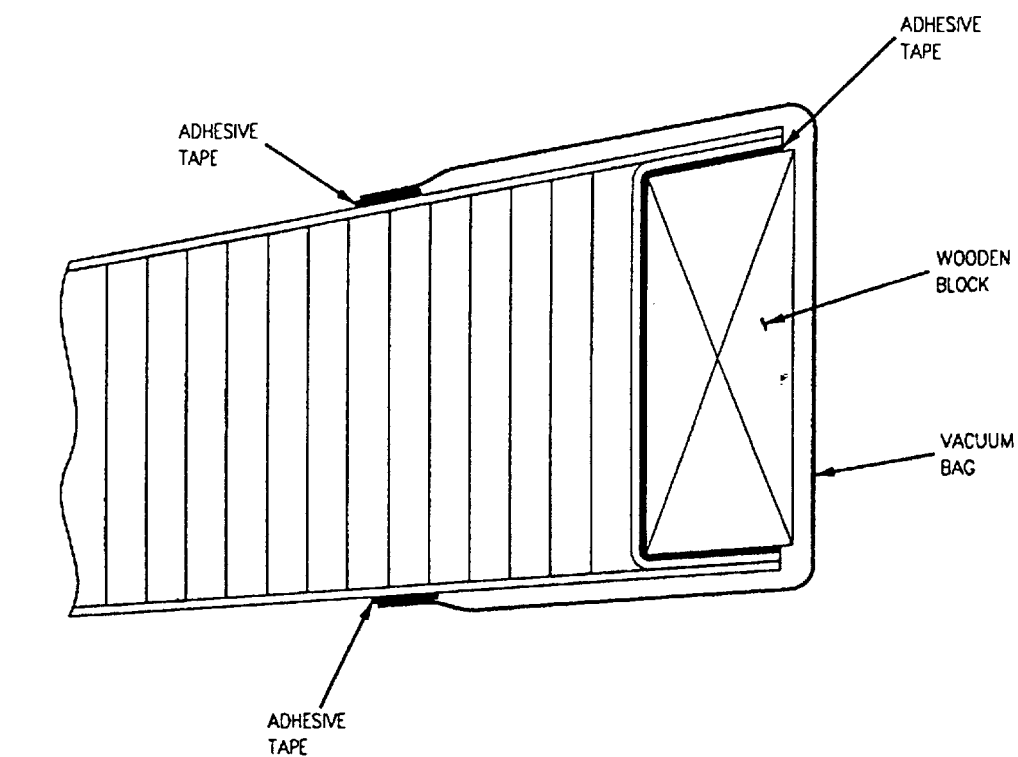
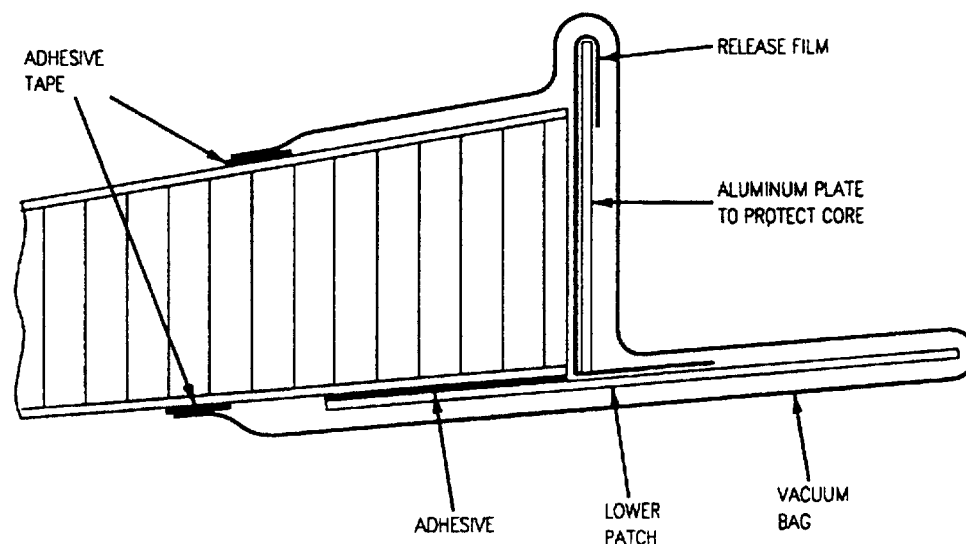


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 5)

08001105



F



G

Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 6)

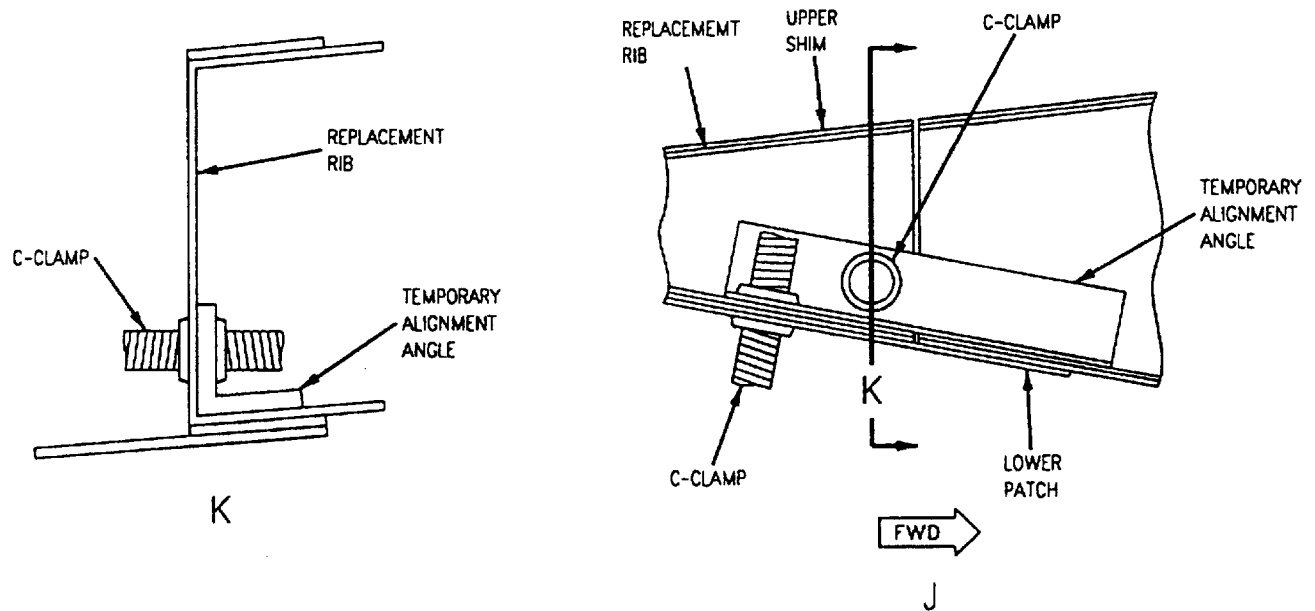
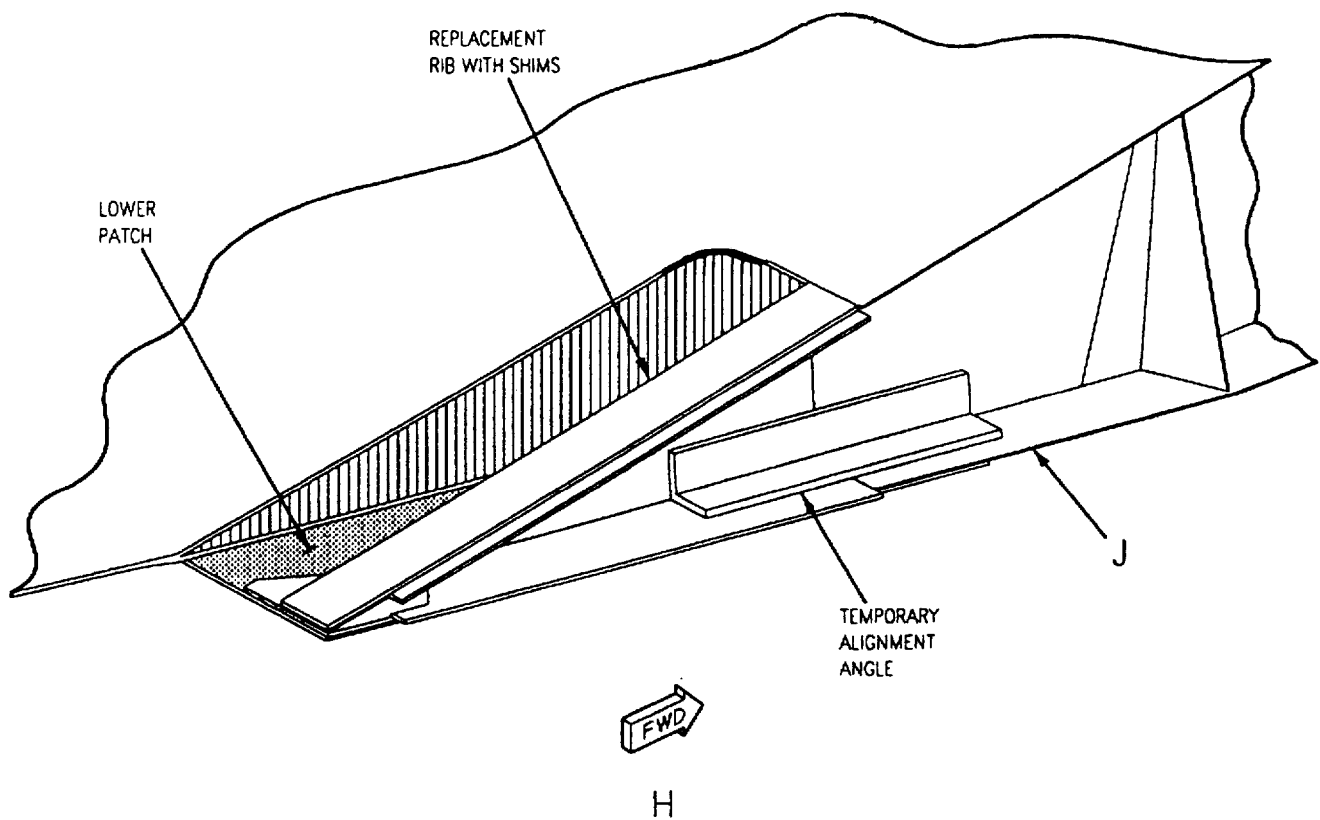


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 7)

08001107



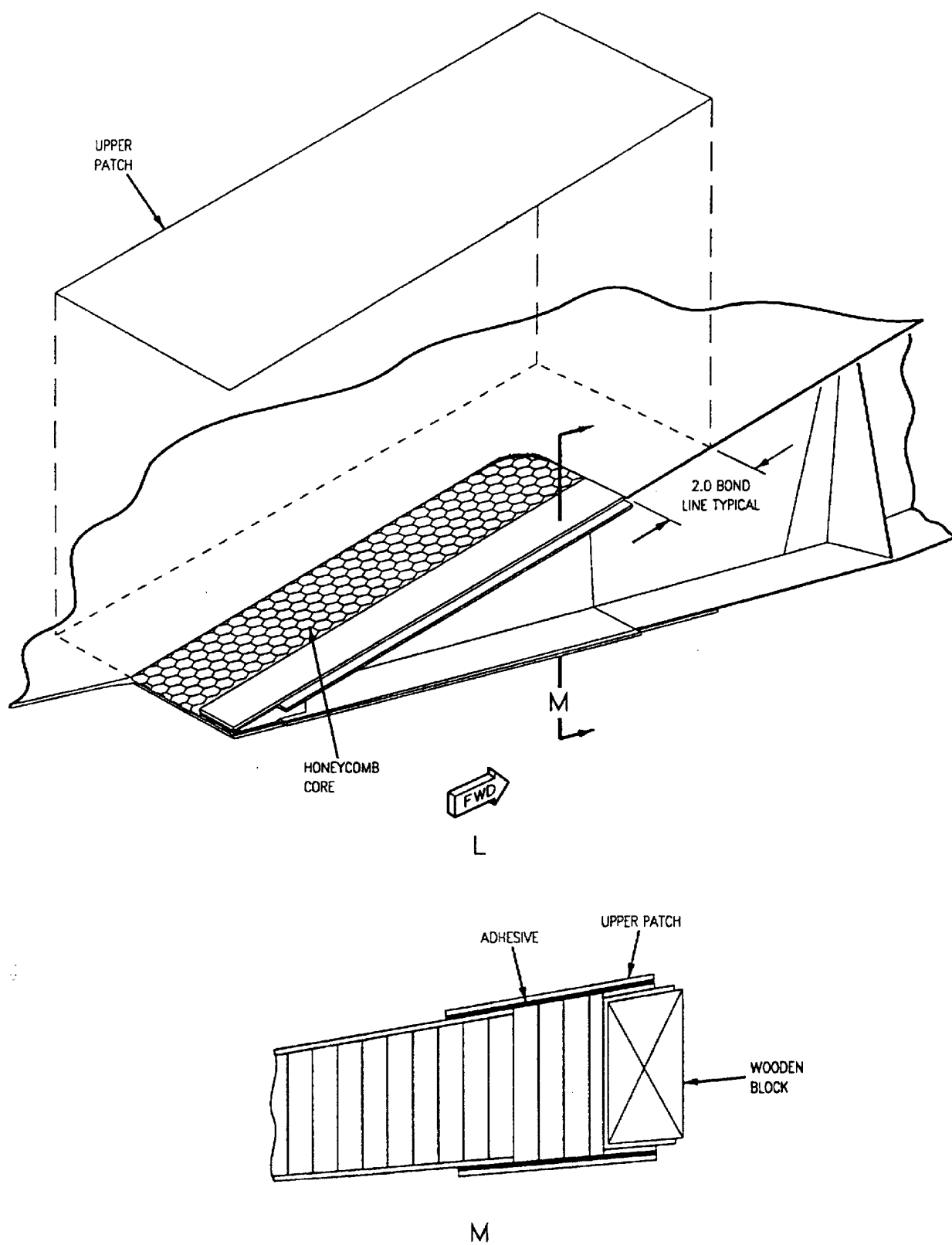
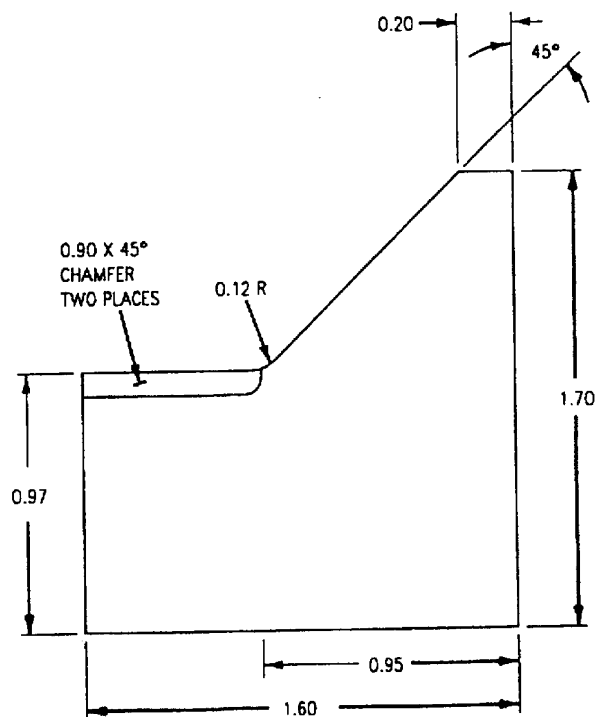
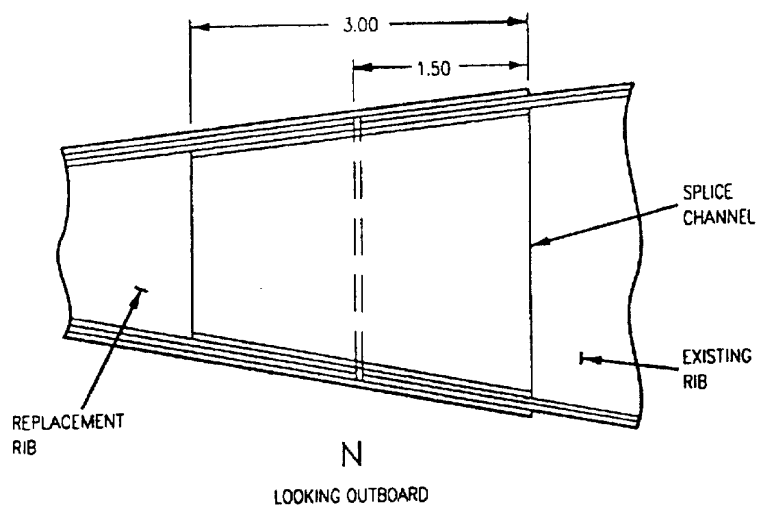
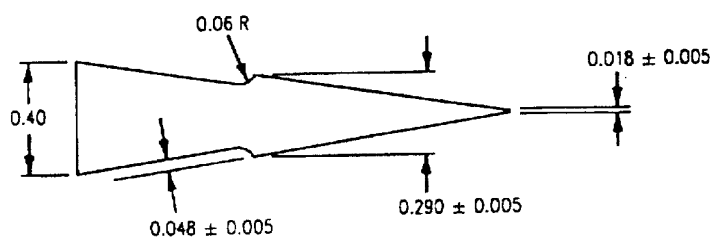


Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 8)

08001108



74A180607-2009  
MATERIAL: MILP181777YGEE0  
0.50 X 1.60 X 1.95



P

Figure 11. Inboard Aft Closure Rib and Skin Damage Repair (Sheet 9)

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ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

TRAILING EDGE FLAP, LEADING EDGE METAL SKINS

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## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Trailing Edge Flap Shroud .....	WP007 00
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner Wing Corrosion Prone Areas .....	WP025 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Integrated Flight Controls .....	A1-F18AC-570-300
Trailing Edge Flap (84PMPU539 or 84MPV540) .....	WP039 00
Line Maintenance Procedures .....	A1-F18AC-LMM-000
Electrical Bonding, Sealing and Electromagnetic Compatibility (EMC) Protection .....	WP037 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Forming Sheet Metal .....	WP004 01
Locating Blind Holes and Trim Lines .....	WP004 03
Fasteners .....	WP004 06
Oversize Fasteners .....	WP004 07
Heat Treatment of Aluminum Alloys .....	WP004 11
Countersink Fillers .....	WP004 12
Cold Working Fastener Holes .....	WP004 20
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Use of Equipment History Record (EHR) Card .....	WP048 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509
Structure Hardware .....	NAVAIR 01-1A-8

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## Record of Applicable Technical Directives

None

1. **DAMAGE EVALUATION.** See figures 1 and 2.

2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits below require depot engineering disposition. Rework of cold worked holes is depot maintenance.

3. **ALLOWABLE REPAIR WEIGHTS.** See figure 3. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on flap for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restricts future repairs within this zone, proceed with repair and enter

required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds need not be recorded on EHR card.

a. For repairs which overlap into more than one repair weight zone, select the zone that has the most restrictive repair criteria. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone all of the repair weight should be added to that zone.

b. Weight of any repairs installed per (WP008 02) shall be included because they are covered by the referenced repair weight zones.

4. **NEGLIGIBLE DAMAGE.** Negligible damage is damage that may be allowed to exist as is. Preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index, figure 1.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

c. The skins (8 and 10, figure 1) are aerodynamic surfaces only. All damage to these parts will be considered negligible unless the skin is cracked or penetrated. Then the skin shall be replaced per paragraph 17.

5. **REPAIRABLE DAMAGE.** The types and limits of damage are below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

#### NOTE

The limits in table 2 apply after blending the damage.

##### a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

##### d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fastener diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands over structure; only one repair per land.

e. Dents exceeding the limits in table 1 must be repaired.

#### 6. REPAIRS.

7. Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repairs are made using aluminum patches. Repair type definitions

are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

8. **PERMANENT REPAIRS.** Determine weight of each repair per tables 3 and 4.

9. **Scratches, Nicks, Gouges, or Corrosion.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). Blend areas indicated on figure 2, details C and F. If after blending, the damage limits of table 2 are exceeded, repair aluminum sheet. Refinish blended areas (A1-F18AC-SRM-500, WP027 00). No weight estimate is required for this repair.

a. Blending of areas indicated on details C and F.

#### NOTE

Blend only as much as required to remove damage.

(1) Blend area on details C and F to a minimum thickness of 0.042 inch, replace all damaged fasteners in area of blending.

b. Repair aluminum sheet that exceeds damage limits of table 2 after blending.

(1) Scratches - make crack or edge repairs.

(2) Nicks, gouges, or corrosion - make hole or edge repair.

#### 10. Cracks.

a. In repair zone A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair cracks free of structure or land areas in aluminum sheet 0.050 inch thick or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18C-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027).

c. In repair zone A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 11. Holes.

a. In repair zone A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair holes free of structure or land areas in aluminum sheet 0.050 inch thick or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair holes across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

12. **Edge.** In repair zone A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch for type of edge damage (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**13. Dents.**

a. In repair zone A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair dents free of structure or land areas in aluminum sheet 0.050 inch thick or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**14. OUTBOARD EDGE DAMAGE REPAIR.** See figure 5. The repair below is for skin damage

only. For fasteners installed through the doubler, see figure; install original type fasteners through replacement skin (A1-F18AC-SRM-200, WP004 06). First oversize fasteners may be used in replacement skin (A1-F18AC-SRM-200, WP004 07). Fabrication of replacement skin and doubler is intermediate level maintenance, installation is organizational level maintenance. Add repair weight shown in figure to total of all repairs within affected zone. If new total repair weight exceeds limits in figure 3, a depot engineering disposition is required.

**Support Equipment Required**

None

**Materials Required**

Nomenclature	Specification or Part Number
7075-0 Alclad 0.050 Thick (For Doubler)	QQ-A-250/13
7075-0 Alclad 0.080 Thick (For Replacement Skin)	QQ-A-250/13

a. Remove trailing edge flap (A1-F18AC-570-300, WP039 00).

b. Remove fasteners of existing skin, upper and lower mold line, from outboard edge of skin to rib XW145.390, view A.

c. Cut and remove skin on center line between rib fasteners, view A.

d. Fabricate replacement skin:

(1) Land thickness at XW145.390 is 0.080.

(2) Form to same configuration as removed skin (A1-F18AC-SRM-200, WP004 01).

(3) Heat treat replacement skin to T6 (A1-F18AC-SRM-200, WP004 11).

e. Fabricate doubler, view B:

(1) Form to skin splice at X145.390, (A1-F18AC-SRM-200, WP004 01).

(2) Heat treat doubler to T6, (A1-F18AC-SRM-200, WP004 11).

f. Drill holes in replacement skin and doubler, (A1-F18AC-SRM-200, WP004 11).

g. Do chemical treatment to replacement skin and doubler, (NAVAIR 01-1A-509).

h. Make and insert countersink fillers into holes of existing skin under doubler, (A1-F18AC-SRM-200, WP004 12).

i. Attach replacement skin to flap by installing fasteners, except through doubler area.

j. Attach doubler by installing fasteners, views D, E, and F.

k. Reinstall trailing edge flap (A1-F18AC-570-300, WP039 00).

l. Add shim between trailing edge flap shroud and shroud outboard drive arm aft mating surfaces to maintain 0.060 gap between shroud and flap, view G. Refer to shroud rigging instructions, (WP007 00).

m. Trim trailing edge flap seal as required to allow clearance for doubler, view G.

n. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**Table 1. Negligible Damage Limits**



















Fig No Idx No	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1)	Skin Zone B4	0.090	0.0006	0.0006	100%		
		0.040	0.0006	0.0006	100%	0.020	
	Zone A4	0.090	0.0006	0.0006	100%		
		0.040	0.0006	0.0006	100%	0.020	
Fig 1 (2)	Skin Zone A4	0.056	0.0006	0.0006	100%	0.028	
		0.080	0.0006	0.0006	100%		
		0.115	0.0006	0.0006	100%		
Fig 1 (3)	Skin Zone B4	0.062	0.0006	0.0006	100%	0.031	
		0.100	0.0006	0.0006	100%		
	Zone A4	0.090	0.0006	0.0006	100%		
		0.100	0.0006	0.0006	100%		



Table 1. Negligible Damage Limits (Continued)

Fig No Idx No	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (4)	Skin Zone C4	0.074	0.0006	0.0006	100%	0.034	
		0.080	0.0006	0.0006	100%	0.040	
	Zone B4	0.062	0.0006	0.0006	100%	0.031	
		0.074	0.0006	0.0006	100%	0.037	
		0.085	0.0006	0.0006	100%	0.042	
		0.090	0.0006	0.0006	100%	0.045	
		0.100	0.0006	0.0006	100%	0.050	
	Zone A4	0.062	0.0006	0.0006	100%	0.031	
		0.074	0.0006	0.0006	100%	0.037	
		0.085	0.0006	0.0006	100%	0.042	
		0.100	0.0006	0.0006	100%	0.050	
Fig 1 (5)	Skin Zone A4	0.042	0.0006	0.0006	100%	0.021	
		0.058	0.0006	0.0006	100%	0.029	
		0.068	0.0006	0.0006	100%	0.029	
		0.080	0.0006	0.0006	100%	0.040	5%
Fig 1 (6)	Skin Zone C4	0.100	0.0006	0.0006	100%	0.050	
	Zone B4	0.060	0.0006	0.0006	100%	0.030	
		0.075	0.0006	0.0006	100%	0.038	
	Zone A4	0.100	0.0006	0.0006	100%	0.050	
Fig 1 (7)	Skin Zone A4	0.100	0.0006	0.0006	100%		5%
		0.075	0.0006	0.0006	100%	0.030	5%

## NOTE

None allowed.

Table 2. Repairable Damage Limits After Blending




Fig No Idx No	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (1)	Skin Zone B4	0.090	0.024	0.018	0.018	10%	0.018	10%
		0.040	N/A	0.008	0.008	4%	0.008	4%
	Zone A4	0.090	0.036	0.018	0.018	10%	0.018	10%
		0.040		0.008	0.008	4%	0.008	4%
Fig 1 (2)	Skin Zone A4	0.115	0.050	0.023	0.023	10%	0.023	10%
		0.080	0.050	0.016	0.016	10%	0.016	10%
		0.056	N/A	0.011	0.011	4%	0.011	4%
Fig 1 (3)	Skin Zone B4	0.100	0.050	0.020	0.020	10%	0.020	10%
		0.062	N/A	0.012	0.012	4%	0.012	4%
	Zone A4	0.100	0.050	0.020	0.020	10%	0.020	10%
		0.090	N/A	0.018	0.018	4%	0.018	4%
Fig 1 (4)	Skin Zone C4	0.080	N/A	0.016	0.016	4%	0.016	4%
		0.074	N/A	0.015	0.015	4%	0.015	4%
	Zone B4	0.100	0.035	0.020	0.020	5%	0.020	5%
		0.090		0.018	0.018	4%	0.018	4%
		0.085	N/A	0.017	0.017	4%	0.017	4%
		0.074	N/A	0.015	0.015	4%	0.015	4%
		0.062	N/A	0.013	0.013	4%	0.013	4%
	Zone A4	0.100	0.050	0.020	0.020	10%	0.020	10%
		0.085	N/A	0.017	0.017	4%	0.017	4%
		0.074	N/A	0.015	0.015	4%	0.015	4%
		0.062	N/A	0.012	0.012	4%	0.012	4%
Fig 1 (5)	Skin Zone A4	0.080	0.050	0.016	0.016	10%	0.016	10%
		0.068	N/A	0.014	0.014	4%	0.014	4%
		0.058	N/A	0.012	0.012	4%	0.014	4%
		0.042	N/A	0.008	0.008	4%	0.008	4%
Fig 1 (6)	Skin Zone C4	0.100		0.020	0.020	10%	0.020	10%
	Zone B4	0.100	0.035	0.020	0.020	10%	0.020	10%
		0.075	N/A	0.015	0.015	4%	0.015	4%
		0.060	N/A	0.012	0.012	4%	0.012	4%
	Zone A4	0.100	0.050	0.020	0.020	10%	0.020	10%
		0.060	N/A	0.012	0.012	4%	0.012	4%















Table 2. Repairable Damage Limits After Blending (Continued)

Fig No Idx No	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (7)	Skin Zone A4	0.100	0.050	0.020	0.020	10%	0.020	10%
		0.075	N/A	0.015	0.015	4%	0.015	4%






## NOTE

 None allowed.

Table 3. Repair Weights in Pounds by Zone

Type of Repair	 Zone (LBS)			
	A4	B4	D3	E3
Type two patch free of land	0.08	0.08	0.16	0.17
Bonded patch				
Damage to bay requiring repair across land			0.47	0.45
Corner damage to land				0.09
Edge damage	 0.52	 0.52	0.48	0.49
	 0.36	 0.36		

## NOTES:

-  See figure 3 for zone locations.  
 Upper skin.  
 Lower skin.  
 See table 4.  
 No repair allowed in this zone.

**Table 4. Aluminum Patch Weights in Pounds, Including Two Layers of FM300  
Film Adhesive**

Max Damage Size, Dia	Repair Patch Thickness							
	0.020	0.025	0.032	0.040	0.050	0.063	0.071	0.080
0.25	-	-	-	0.05	0.06	0.07	0.07	0.08
0.50	-	-	0.05	0.06	0.07	0.08	0.09	0.09
0.75	-	0.05	0.06	0.06	0.07	0.09	0.10	0.11
1.00	0.05	0.05	0.06	0.07	0.08	0.10	0.11	0.12
1.50	0.06	0.07	0.08	0.09	0.11	0.13	0.14	0.15
2.00	0.07	0.08	0.10	0.11	0.13	0.16	0.17	0.19
2.50	0.09	0.10	0.12	0.13	0.16	0.19	0.21	0.23
3.00	0.10	0.12	0.14	0.16	0.19	0.22	0.25	0.27
3.50	0.12	0.14	0.16	0.19	0.22	0.26	0.29	0.32
4.00	0.14	0.16	0.18	0.22	0.25	0.30	0.33	0.37
4.50	0.16	0.18	0.21	0.25	0.29	0.35	0.38	0.42
5.00	0.18	0.20	0.24	0.28	0.33	0.40	0.44	0.48
5.50	0.20	0.23	0.27	0.32	0.37	0.45	0.49	0.54
6.00	0.23	0.26	0.30	0.35	0.42	0.50	0.55	0.61

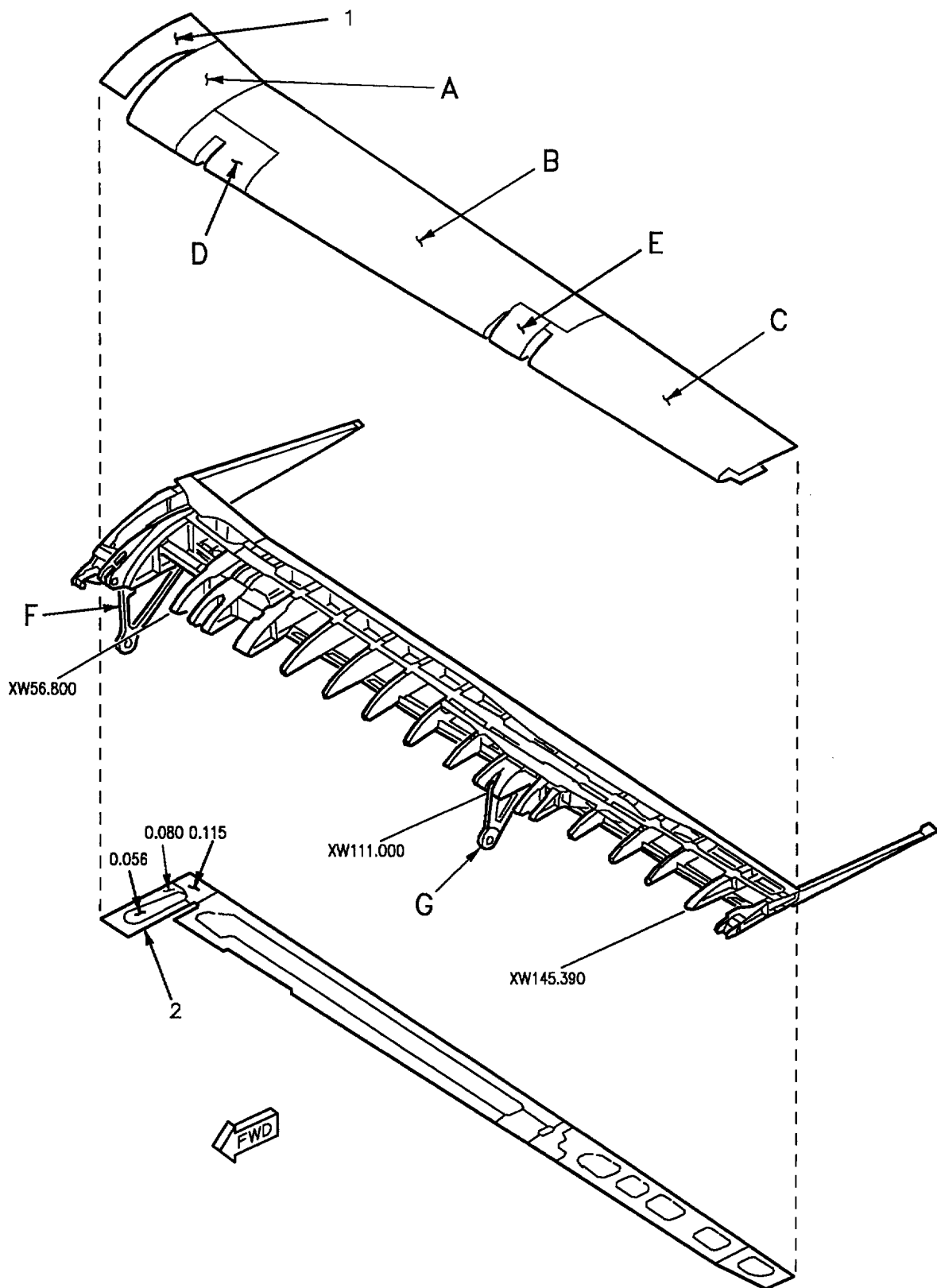


Figure 1. Material Index (Sheet 1)

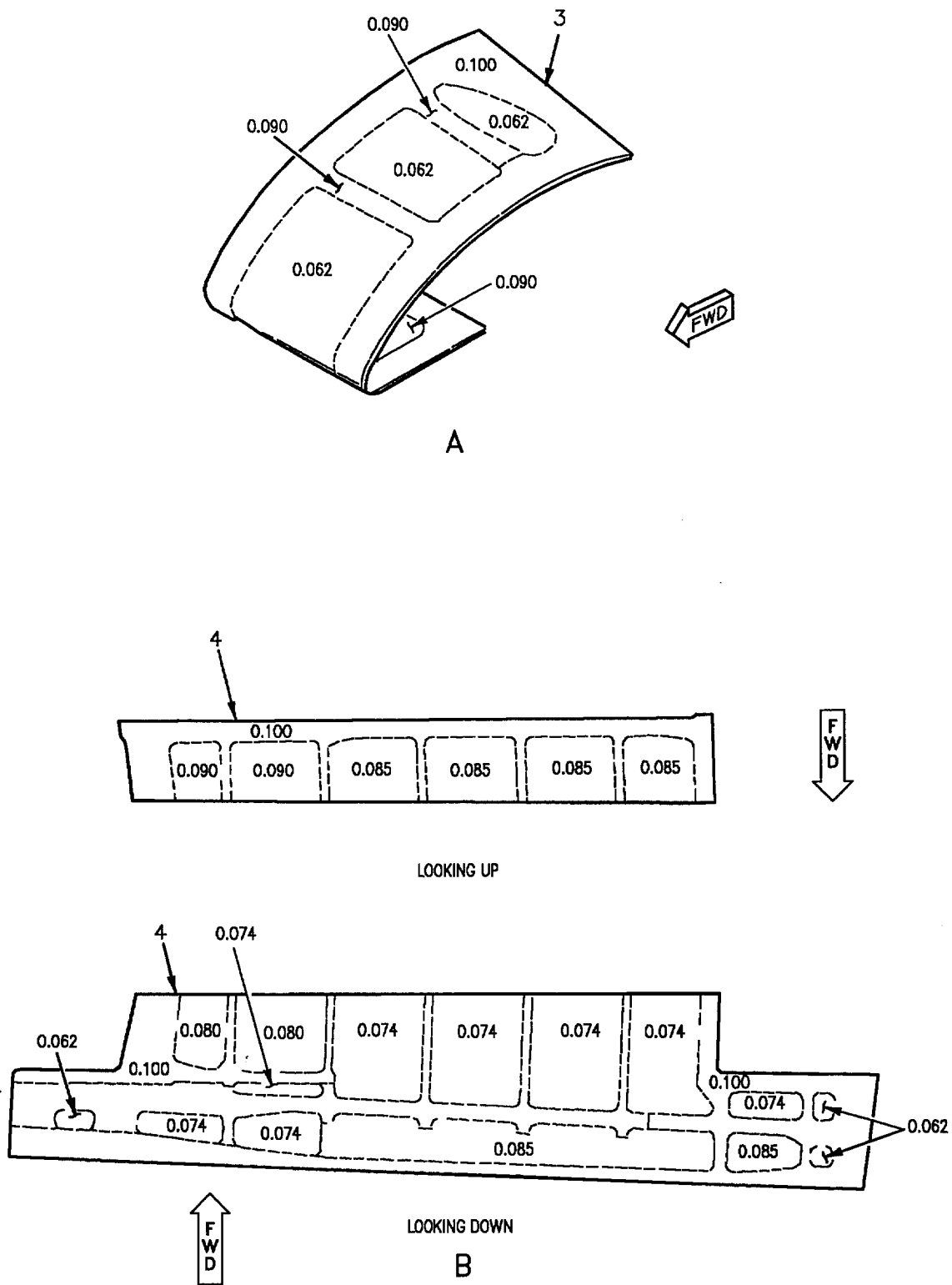


Figure 1. Material Index (Sheet 2)

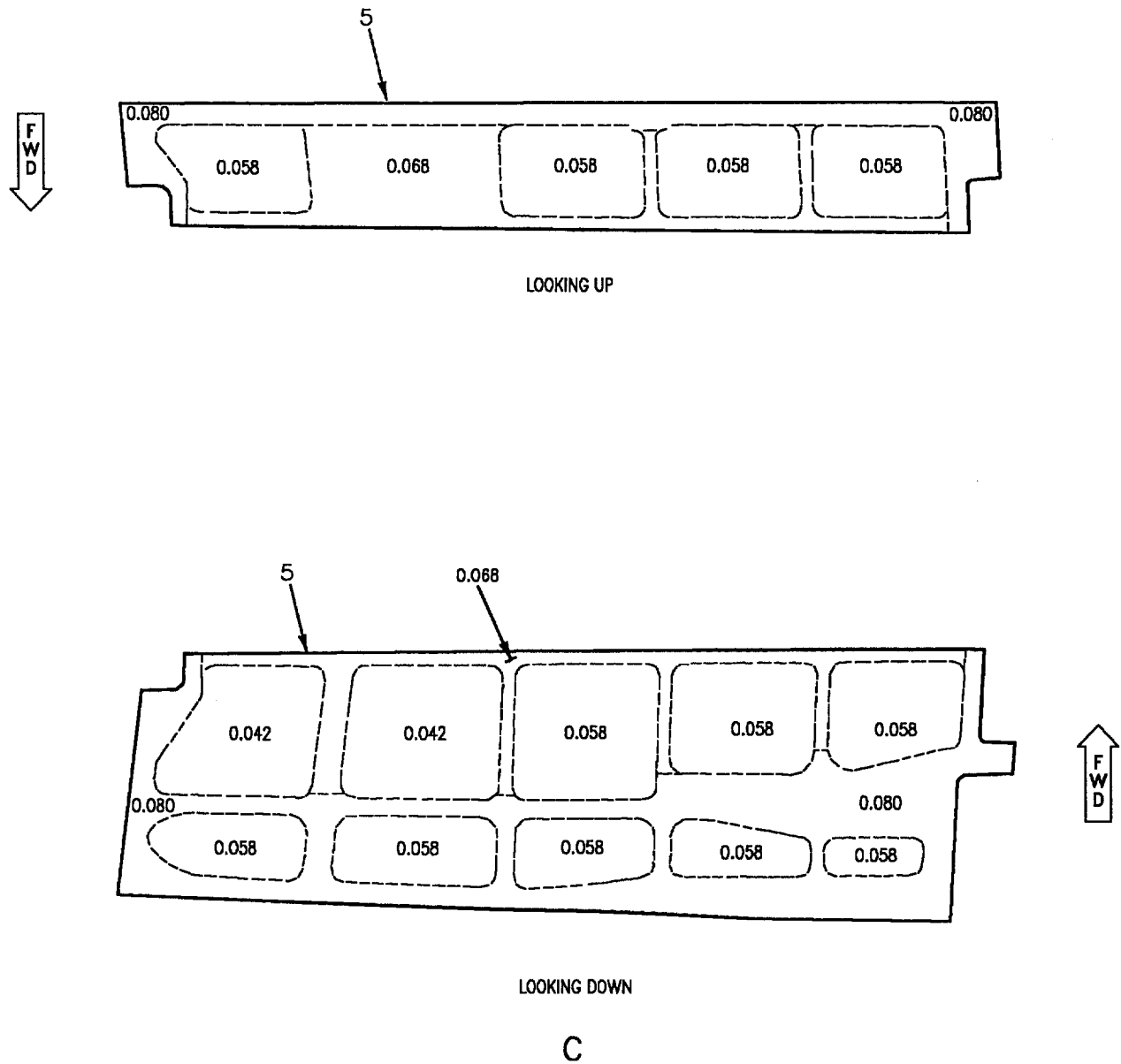
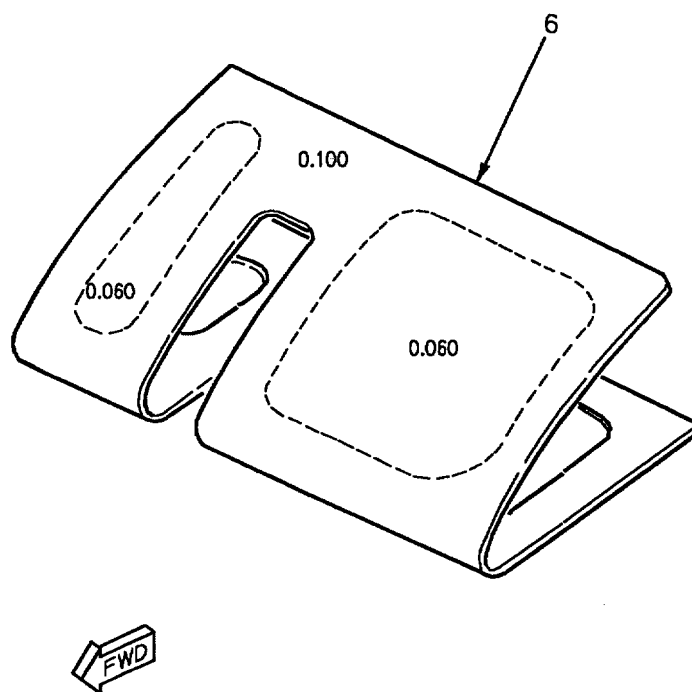


Figure 1. Material Index (Sheet 3)





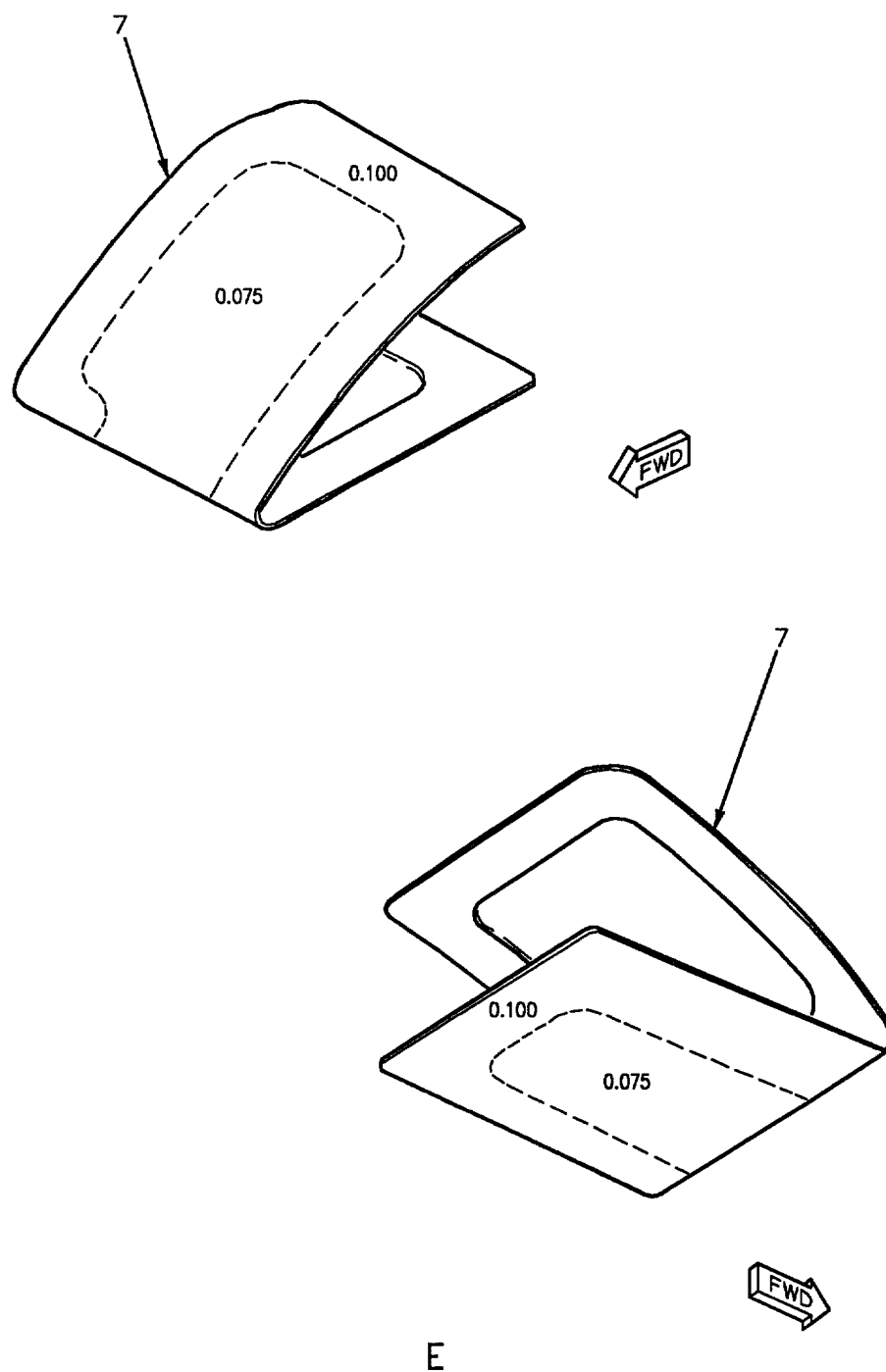


Figure 1. Material Index (Sheet 5)

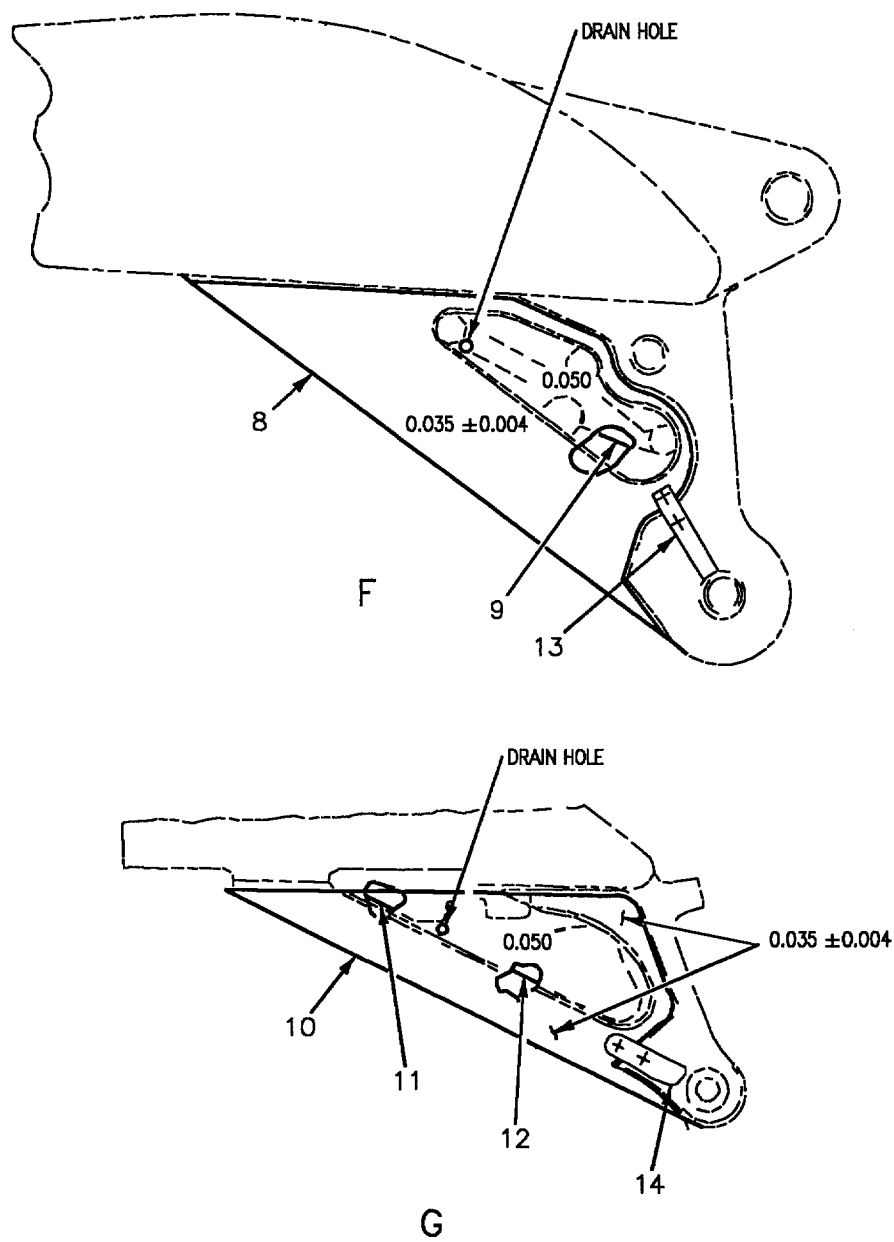


Figure 1. Material Index (Sheet 6)












Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Skin 74A180729-2011, -2012	 0.090 Sheet	7075-T6 Alclad
2		Skin 74A180729-2007, -2008	0.125 Sheet	7075-T6 Alclad
3		Skin 74A180729-2009, -2010	0.100 Sheet	7075-T6 Alclad
4		Skin 74A180738-2001, -2002	0.100 Sheet	7075-T6 Alclad
5		Skin 74A180738-2003, -2004	0.080 Sheet	7075-T6 Alclad
6		Skin 74A180688-2001, -2002	0.100 Sheet	7075-T76 Alclad
7		Skin 74A180689-2001, -2002	 0.100 Sheet	7075-T76 Alclad
8		Skin 74A180690-2017	0.050 Sheet	7075-T6 Alclad
9		Spacer 74A180765-2015	Injection Molding	Nylon
10		Skin 74A10691-2019	0.050 Sheet	7075-T6 Alclad
11		Spacer 7A180765-2007	Injection Molding	Nylon
12		Spacer 74A180765-2001	Injection Molding	Nylon
13	  	Terminal Strip  74A180668-2003 74A180668-2005	0.020 Sheet	301 CRES

Figure 1. Material Index (Sheet 7)









Idx No.	Eft	Nomenclature and Part No.	Description	Material
14		Terminal Strip  74A180668-2001	0.020 Sheet	301 CRES
<p style="text-align: center;"><b>LEGEND</b></p> <p> Land is 0.090, bay is 0 040).</p> <p> Land is 0.100, bay is 0.075.</p> <p> 162901 THRU 162905, 162909 THRU 163093, 163095 THRU 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163114, 163118, 163120 THRU 163122, 163127 THRU 163128, 163130, 163133 THRU 163135, 163137 THRU 163138, 163142, 163145 THRU 163146, 163148, 163151, 163153 THRU 163155, 163158, 163160, 163163 AND UP.</p> <p> 163093, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163115, 163118, 163120 THRU 163123, 163127, 163128, 163130, 163133 THRU 163135, 163137, 163138, 163142, 163145, 163146, 163148, 163151, 163153 THRU 163155, 163158, 163160, 163163 AND UP.</p> <p> 161353 THRU 163133.</p> <p> 163134 AND UP.</p> <p> Inspect for corrosion (A1-F18AC-SRM-500, WP025 00). Prepare mating surfaces per Electrical Bonding Class S (A1-F18AC-LMM-000, WP037 00). Fay seal mating surfaces (A1-F18AC-SRM-200, WP011 00), to prevent moisture trap.</p>				

Figure 1. Material Index (Sheet 8)

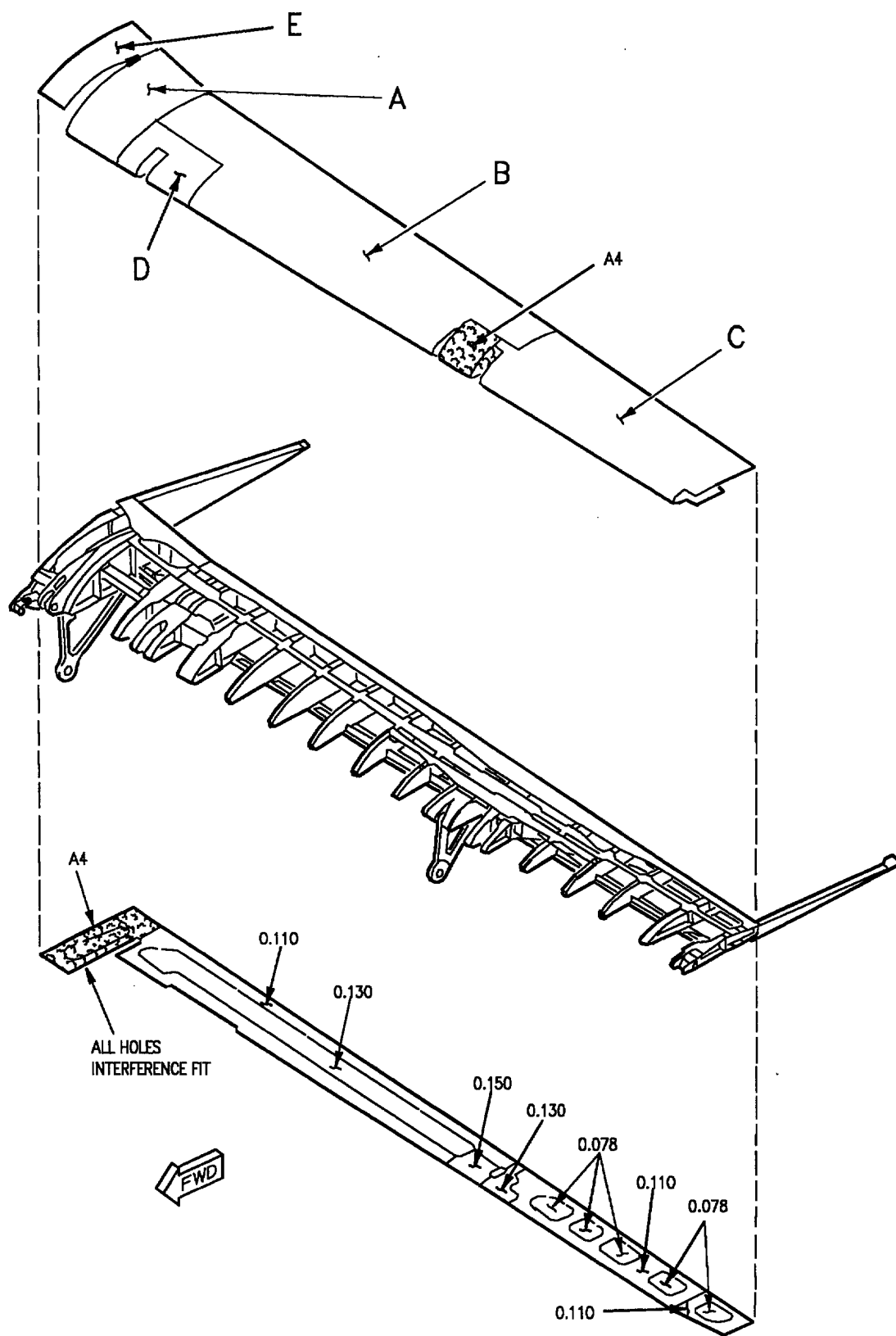


Figure 2. Repair Zones (Sheet 1)

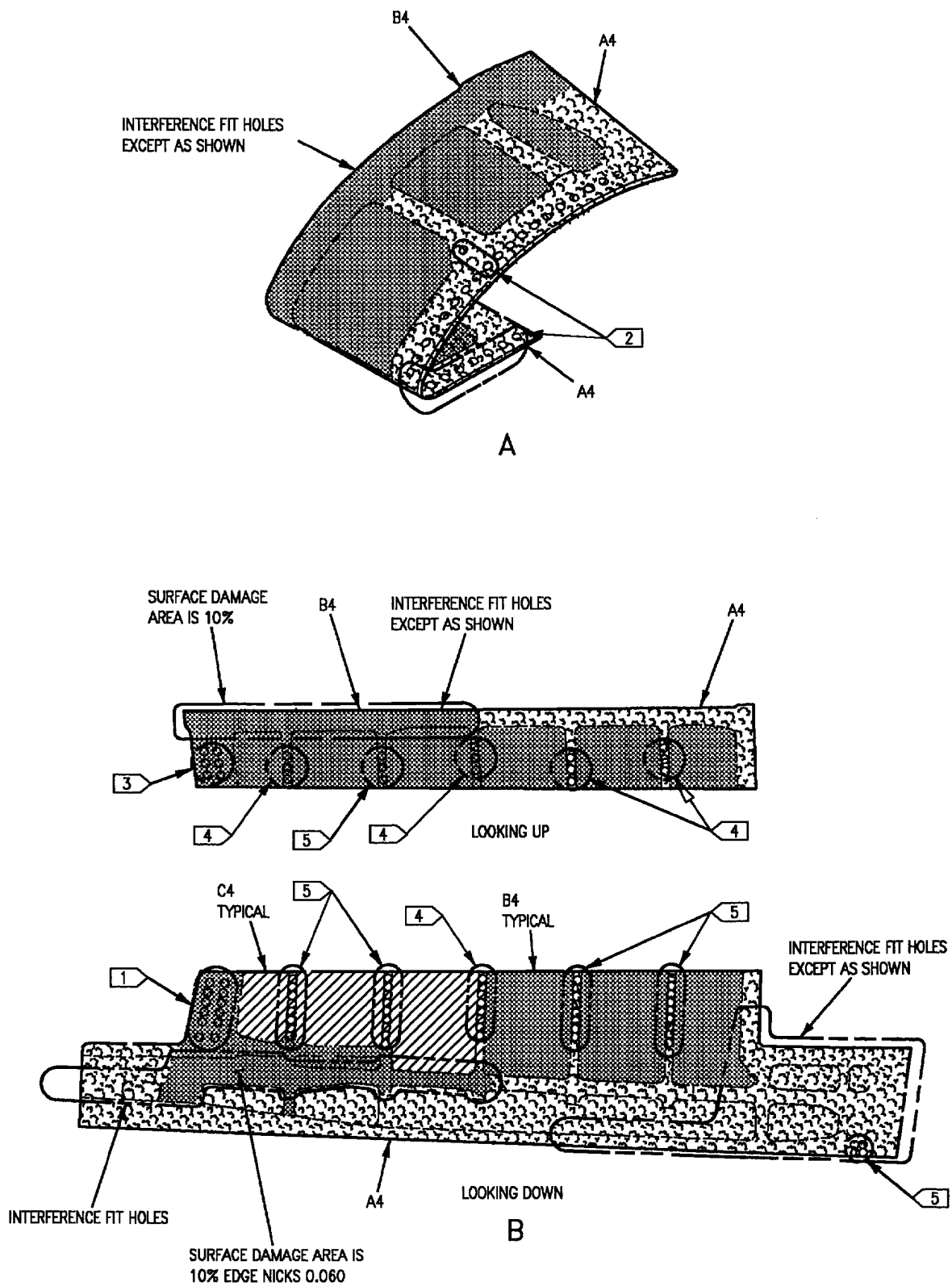


Figure 2. Repair Zones (Sheet 2)

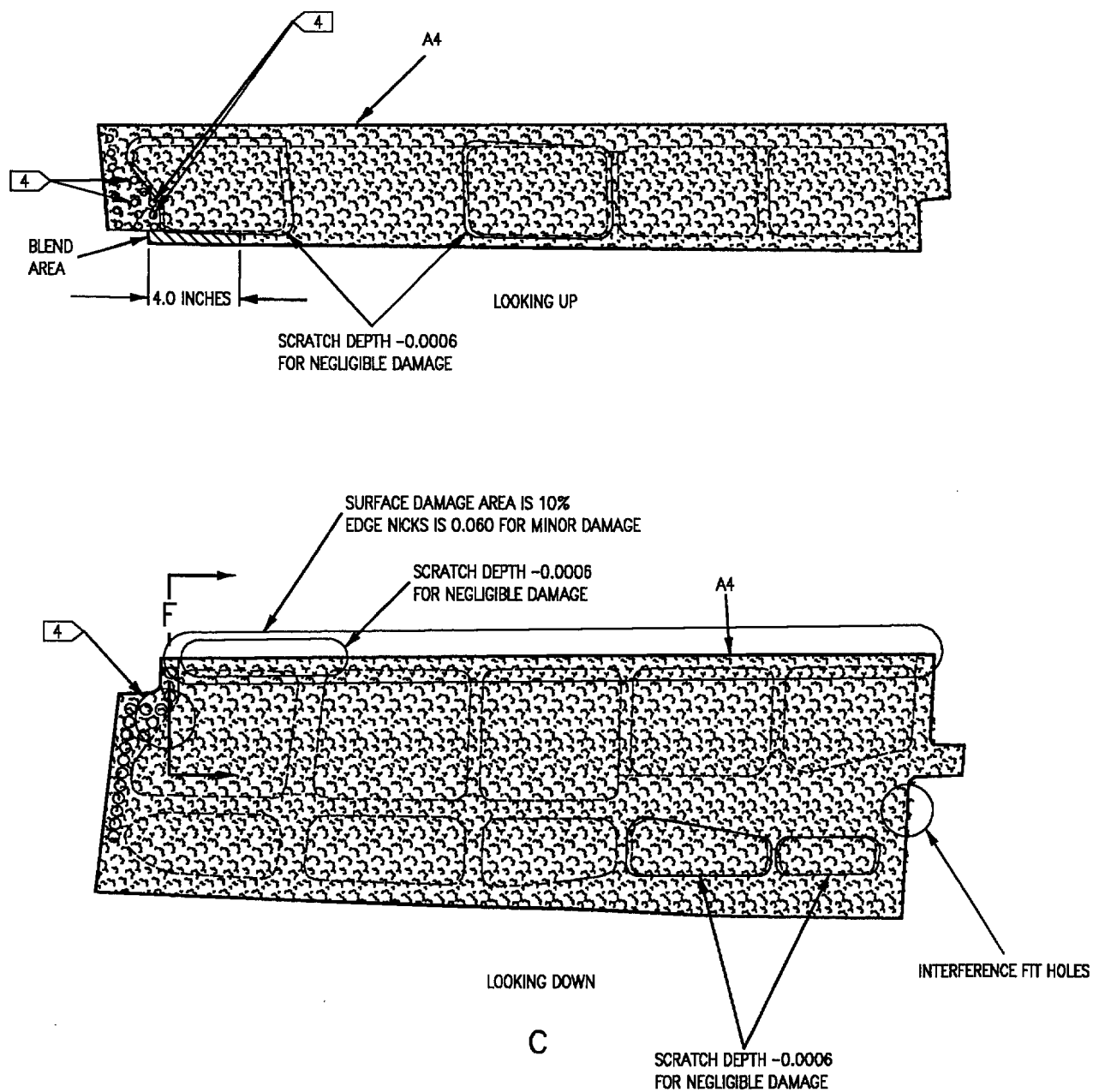


Figure 2. Repair Zones (Sheet 3)

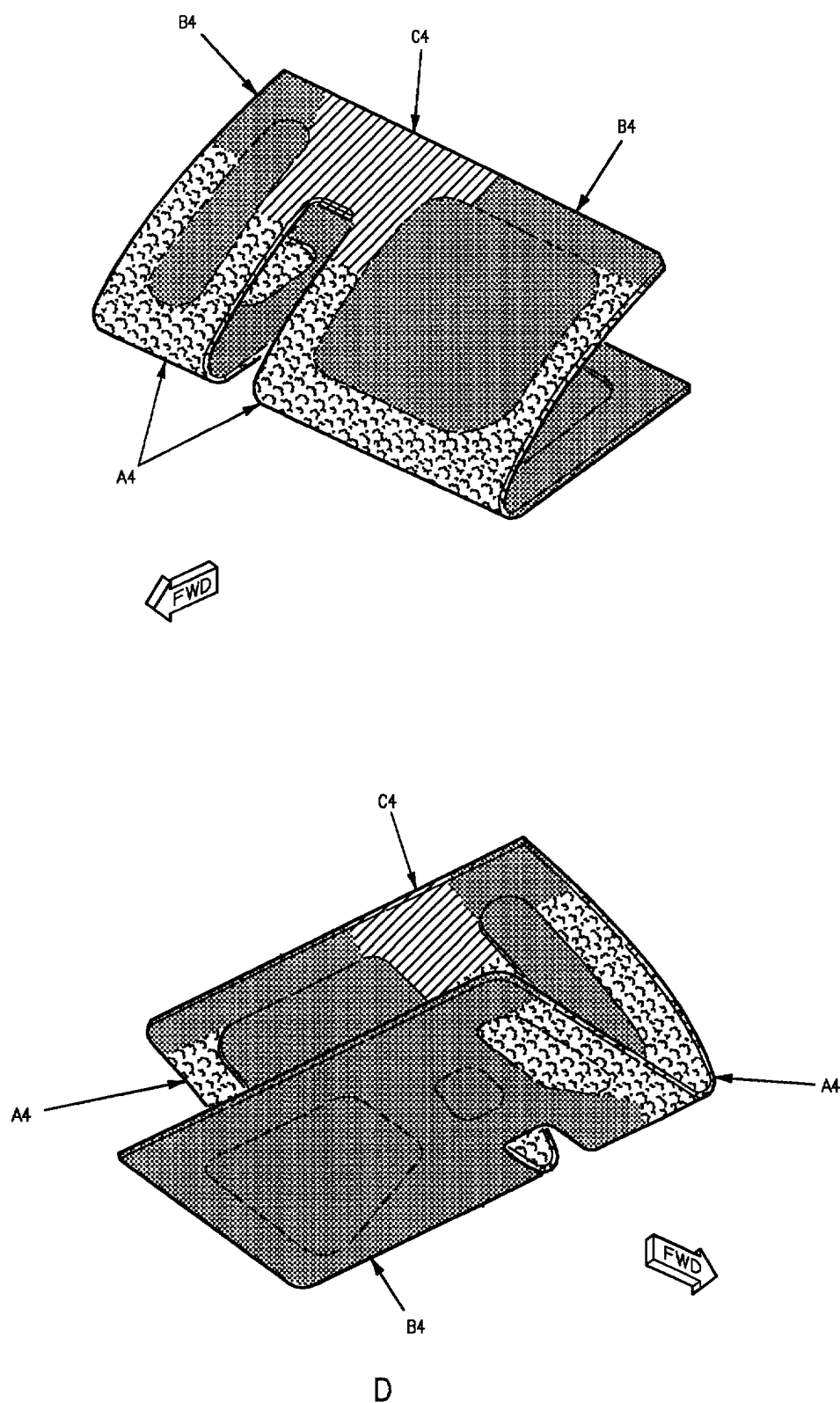
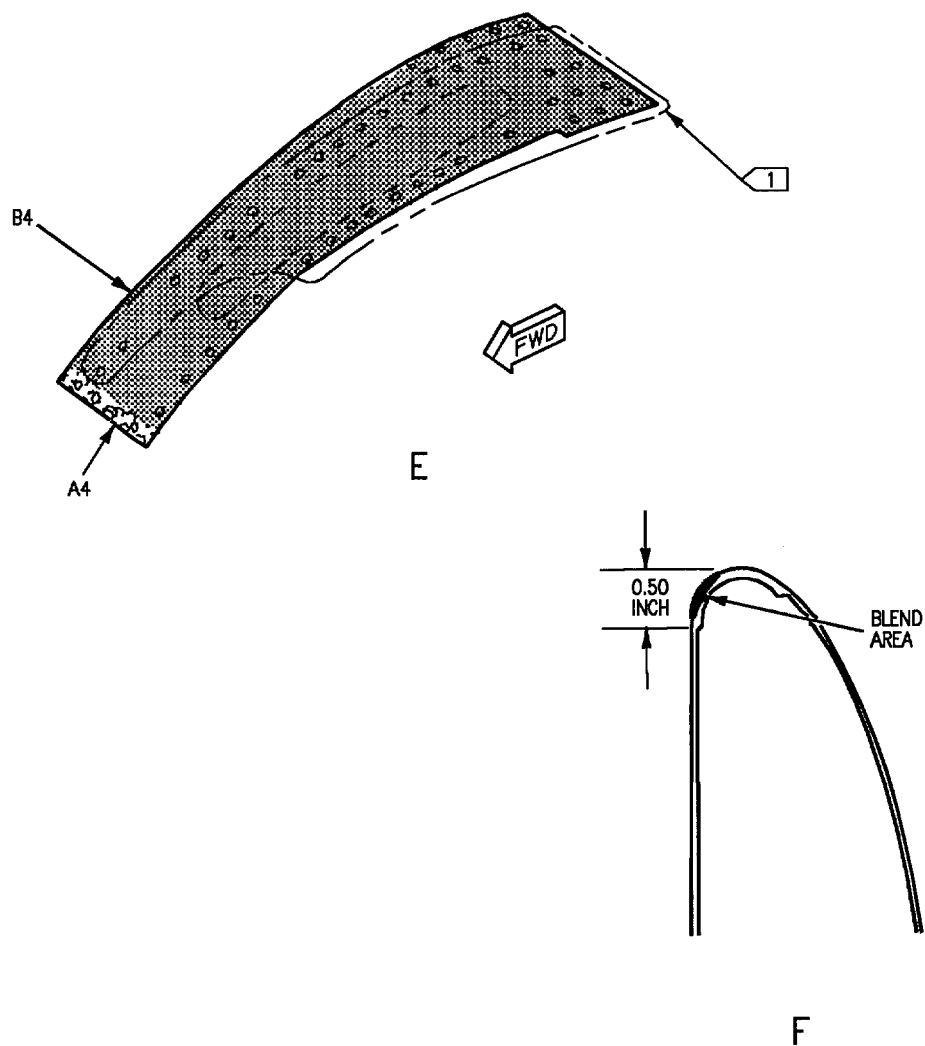


Figure 2. Repair Zones (Sheet 4)

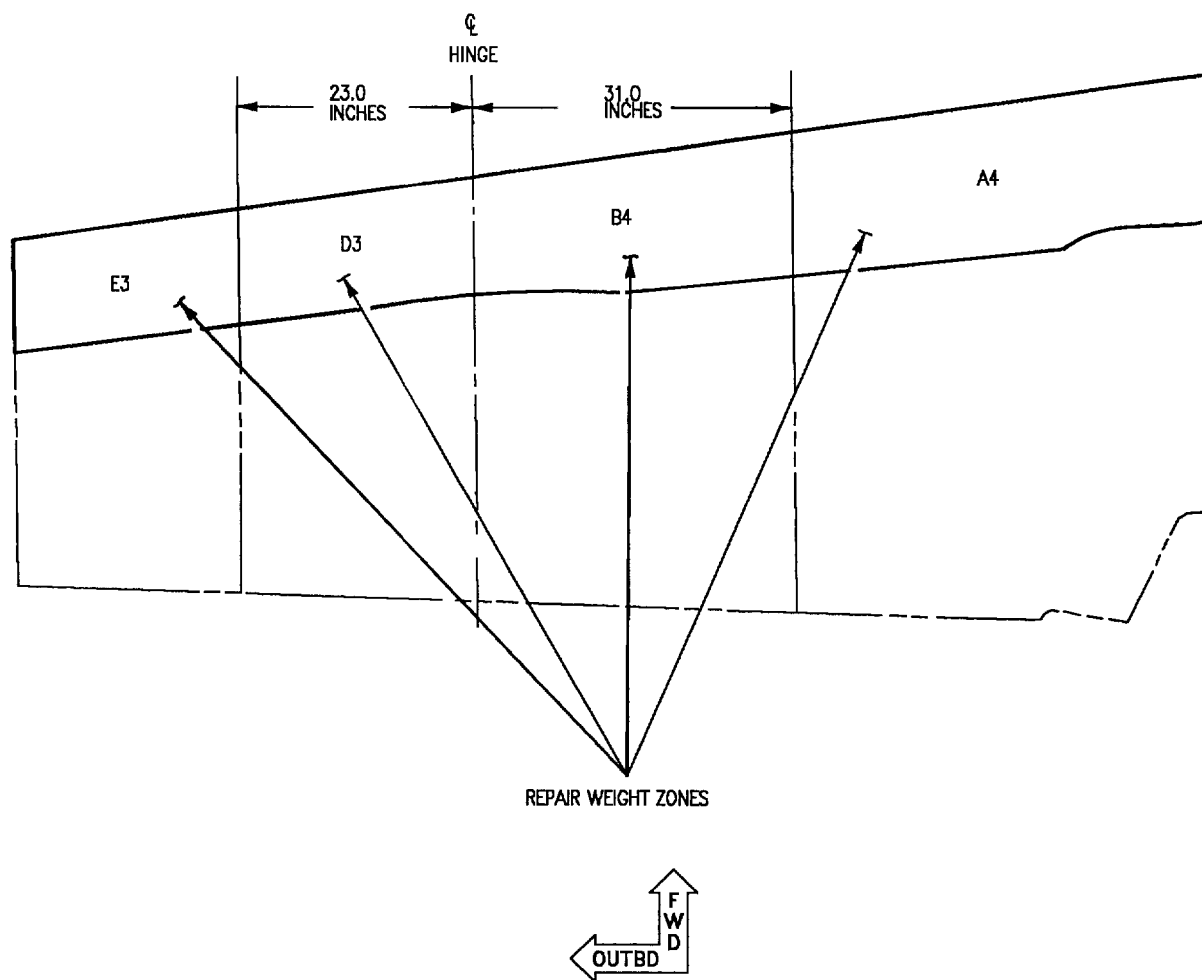




## LEGEND

INDEX	TYPE OF COLD WORKED HOLES	HOLE SIZE	EFFECTIVITY
1		$0.1990+0.0030-0.0000$	
2		$0.2005+0.0025-0.0000$	
3		$0.1895+0.0025-0.0000$	
4		$0.1600+0.0025-0.0000$	
5		$0.1645+0.0030-0.0000$	

Figure 2. Repair Zones (Sheet 5)



ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT(LB)
A4	4
B4	4
D3	2
E3	2

Figure 3. Repair Weight Zones

## 15. REPLACEMENT.

16. **SKIN (74A180689).** Skin is replaceable and requires drilling. For locating blind holes (A1-F18AC-SRM-200, WP004 03). For removal and installation of Jo-Bolts (NAVAIR 01-1A-8). Fasteners are shown on figure 4.

17. **SKIN (74A180688).** Skin is replaceable and requires drilling. For locating blind holes (A1-F18AC-SRM-200, WP004 03). For removal and installation of Jo-Bolts (NAVAIR 01-1A-8). Fasteners are shown on figure 4. Cold work lower and upper surface fastener holes (A1-F18AC-SRM-200, WP004 20). Fasteners are shown on figure 4.

18. **INBOARD AND OUTBOARD DRIVE HINGE ASSEMBLY SKIN REPLACEMENT.** See figure 6. Inspect for corrosion prone areas (A1-F18AC-SRM-500, WP025 00).

## Support Equipment Required

None

## Materials Required

Nomenclature	Specification or Part Number
Cheesecloth	CCC-C-440, Type 1, Class 1
Cleaning Compound	MIL-C-38736
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Paper, Abrasive	A-A-1047, Grit 320-9X11
Rivet	MS20470AD4
Rivet	NAS1097AD5
Sealing Compound	MIL-S-83430, CLA-1/2



Be careful not to enlarge holes when drilling out rivets.

a. Remove rivets (3 or 10) (NAVAIR 01-1A-8) attaching terminal strip (4 or 11). Remove terminal strip (4 or 11).

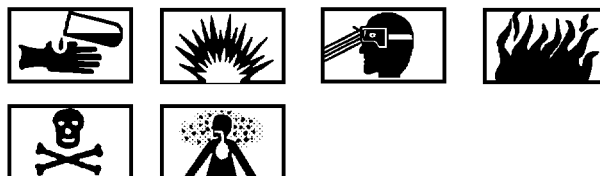


Be careful not to damage internal structure when removing skin (7 or 15).

b. Remove rivets attaching skin to spacer(s). Remove sealing compound, as required, with scraper then remove damaged skin.

c. Scuff sand sealing compound that remains bonded to drive hinge. Roughen the surface to promote good adhesion; don't sand to remove sealing compound.

d. Remove sanding dust with vacuum.



Cleaning Compound

8



To avoid contamination of cleaning compound, always pour onto clean cheesecloth. Never dip cheesecloth into cleaning compound.

## NOTE

During cleaning operation, it is required that clean cheesecloth and cleaning compound be used.

e. Thoroughly clean bond area (edges of skin and drive hinge) with clean cheesecloth moistened with cleaning compound. Wipe clean with clean dry cheesecloth before cleaning compound evaporates.

f. Continue cleaning operation until no soil remains on cheesecloth.

## NOTE

After cleaning procedure starts do not touch surfaces to be bonded with bare hands. Wear clean cotton gloves while handling parts. If desired rubber gloves may be worn under clean cotton gloves.

g. Install replacement skin with NAS1097AD5 rivets, length determined on installation.



Sealing Compound



6

h. Fillet seal skin (7 or 15) edge with sealing compound (A1-F18AC-SRM-200, WP011 00).

i. Butt seal skin (7 or 15) edge sealing compound (A1-F18AC-SRM-200, WP011 00).

j. Refinish drive hinge assembly skin (7 or 15) (A1-F18AC-SRM-500, WP027 00).



Finish system must remain on hinge skin, under terminal strips, to prevent corrosion.

k. Clean terminal strip (4 and 11) and mating surface with cheesecloth moistened with cleaning compound. Wipe with clean dry cheesecloth before cleaning compound evaporates.

l. Install terminal strip (4 and 11) per paragraph 19. g.

**19. GROUNDING TERMINAL STRIPS.** See figure 7. Replacement of grounding terminal strips (terminal strips) is intermediate maintenance. This procedure is applicable to 74A180668 terminal strips attached to 74A180684 inboard hinge and to 74A180685 outboard hinge.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Aircraft Structure	74D110325-1001
Repair Tool Kit	
Compression Rivet	-
Squeezer	
Drill Motor, Variable Speed	NO. 11 DPV-15DA-450/1250
Ohmmeter	AN/USM-21A or equivalent

## Materials Required

Nomenclature	Specification or Part Number
Sealing Compound	MIL-S-83430, Class B-1/2
Solid Rivet (as required)	MS20470AD4
Terminal Strips Grounding (2), Outboard Hinge	74A170668-2001
Terminal Strips Grounding (2), Inboard Hinge	74A170668-2005

a. Remove trailing edge flap (A1-F18AC-570-300, WP039 00).

b. Place trailing edge flap on suitable workbench or holding fixture.



Use care when drilling out rivets not to damage hinge or skin.

c. Drill out rivets attaching terminal strips to inboard hinge and skin or outboard hinge and skin.

d. Remove terminal strips and inspect for corrosion. Refer to (A1-F18AC-SRM-500, WP005 00) for inspection and corrosion removal.

e. If corrosion exists, remove corrosion and evaluate damage this WP.



Finish system must remain on surfaces, under terminal strips, to prevent corrosion.

f. Apply finish system as required (A1-F18AC-SRM-500, WP027 00).

g. Install new terminal strips:

(1) Fay seal mating surfaces of terminal strips and inboard hinge and skin or outboard hinge and skin. For fay sealing, refer to (A1-F18AC-SRM-200, WP011 00).



Do not vibration drive rivets. Damage to hinge or skin may result.

#### NOTE

Grounding requirement is made through attaching rivets. Do not wet install rivets with sealing compound. Rivets may come with protective (non-conductive) coating. Coating must be removed prior to installation.

(2) Attach new terminal strips to inboard hinge and skin or outboard hinge and skin using MS20470AD4 rivets. Determine length of rivet on installation. Install rivets using compression rivet squeezer.



Sealing Compound



6

(3) Apply fillet seal around periphery of terminal strips contacting inboard hinge and skin or outboard hinge and skin. For fillet sealing, refer to (A1-F18AC-SRM-200, WP011 00).

h. Resistance Measurement.

(1) Locate a bare metal area on the rib assembly (1 and 10).

(2) Check the resistance between terminal strips (4 and 11) and bare metal area of rib assembly (1 and 10). The maximum DC resistance is 0.0025 ohms. Refer to (NA 01-1A-505, WP018 00) for resistance check. If resistance is above the maximum, remove and replace terminal strips.

i. Apply finish system as required to any bare metal areas (A1-F18AC-SRM-500, WP027 00).

j. Install trailing edge flap (A1-F18AC-570-300, WP039 00).

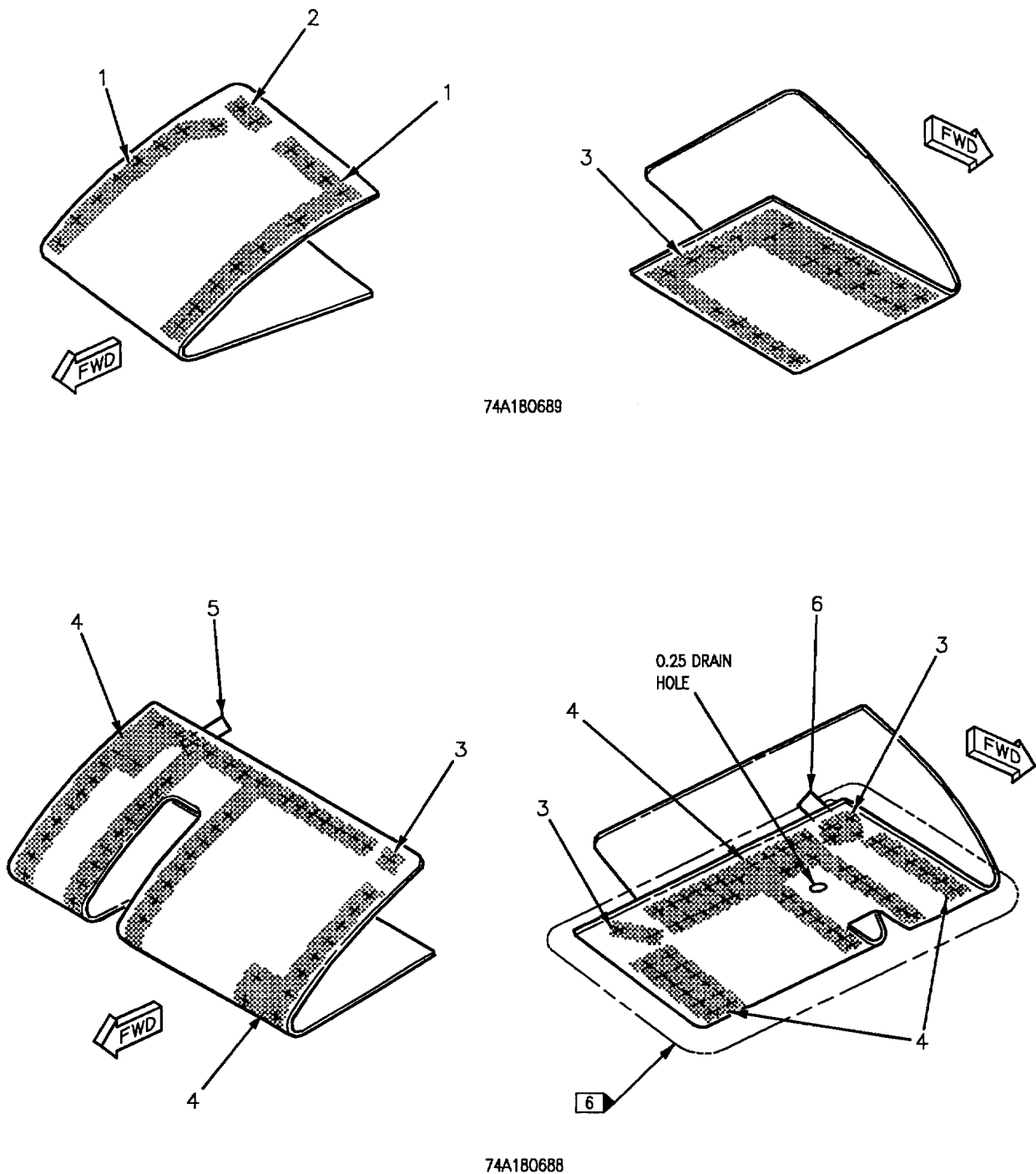


Figure 4. Skins (74A180688 and 74A180689) Replacement (Sheet 1)















Idx No.	Eft		Nomenclature	Part Number
1			 Fastener	NAS1399C5A
2			 Fastener	NAS1399C6A
3			 Fastener	PLT1058-6
4			 Fastener	PLT1058-5
5			Spacer	74A180670-2083
6			Spacer	74A180670-2085
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.1600 +0.0040 -0.0000.</p> <p> Hole diameter is 0.1920 +0.0040 -0.0000.</p> <p> Hole diameter is 0.1990 +0.0030 -0.0000.</p> <p> Hole diameter is 0.1645 +0.0030 -0.0000.</p> <p> Length of fastener is determined on installation.</p> <p> Cold work lower surface holes only (A1-F18AC-SRM-200, WP004 20).</p>				

Figure 4. Skins (74A180688 and 74A180689) Replacement (Sheet 2)

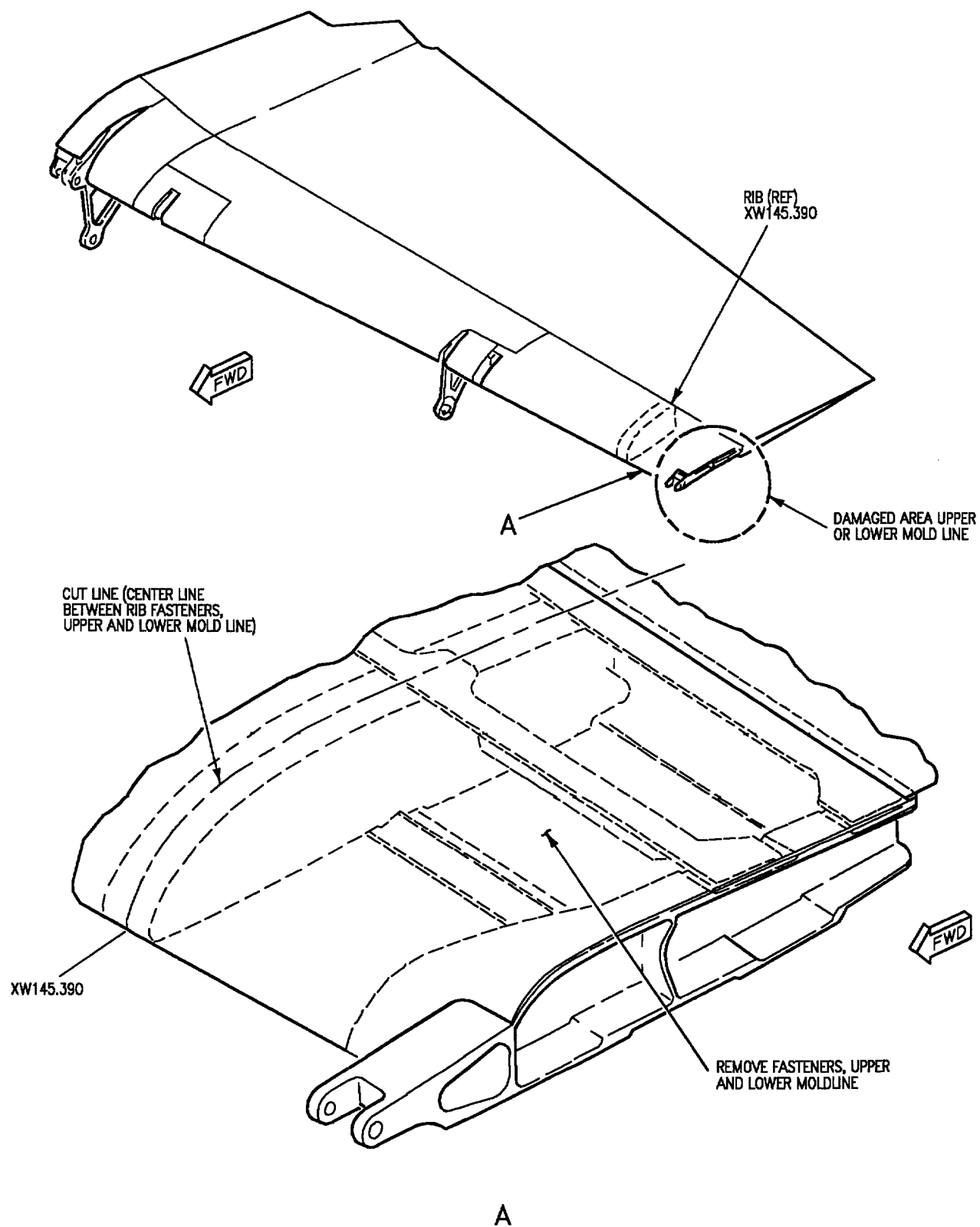
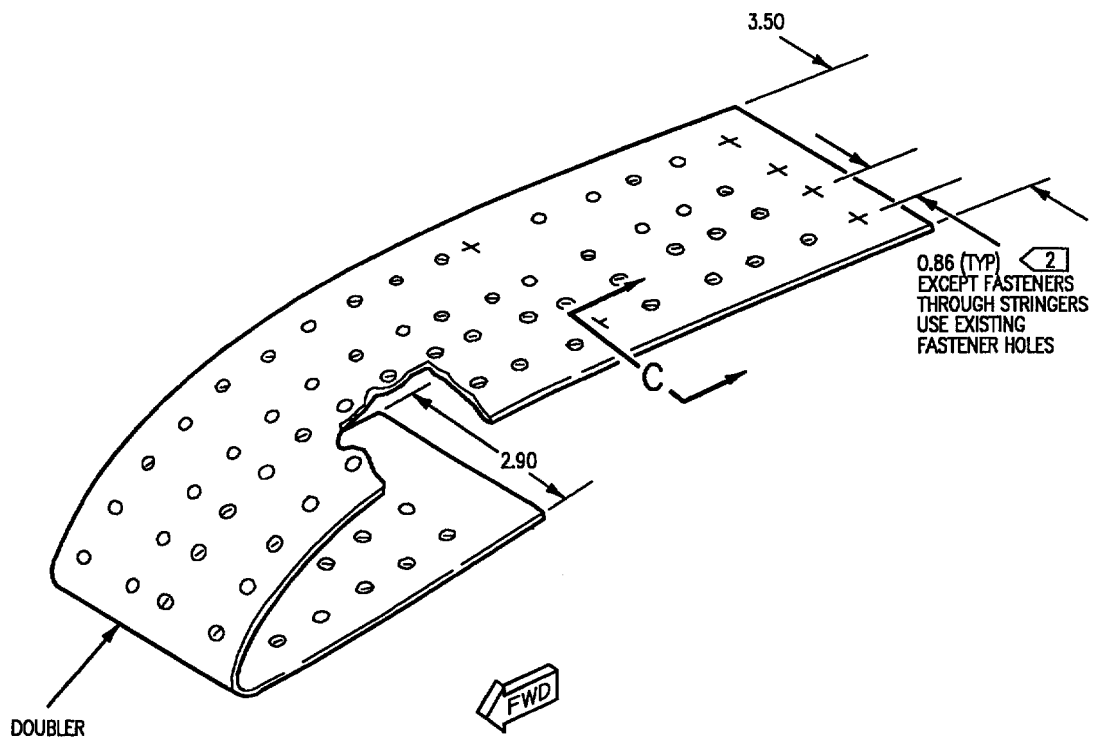
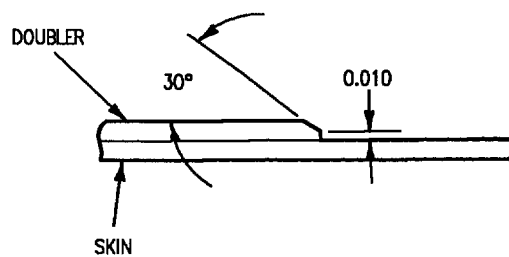


Figure 5. Outboard Edge Damage Repair (Sheet 1)





B



C

(TYPICAL BOTH EDGES)

Figure 5. Outboard Edge Damage Repair (Sheet 2)

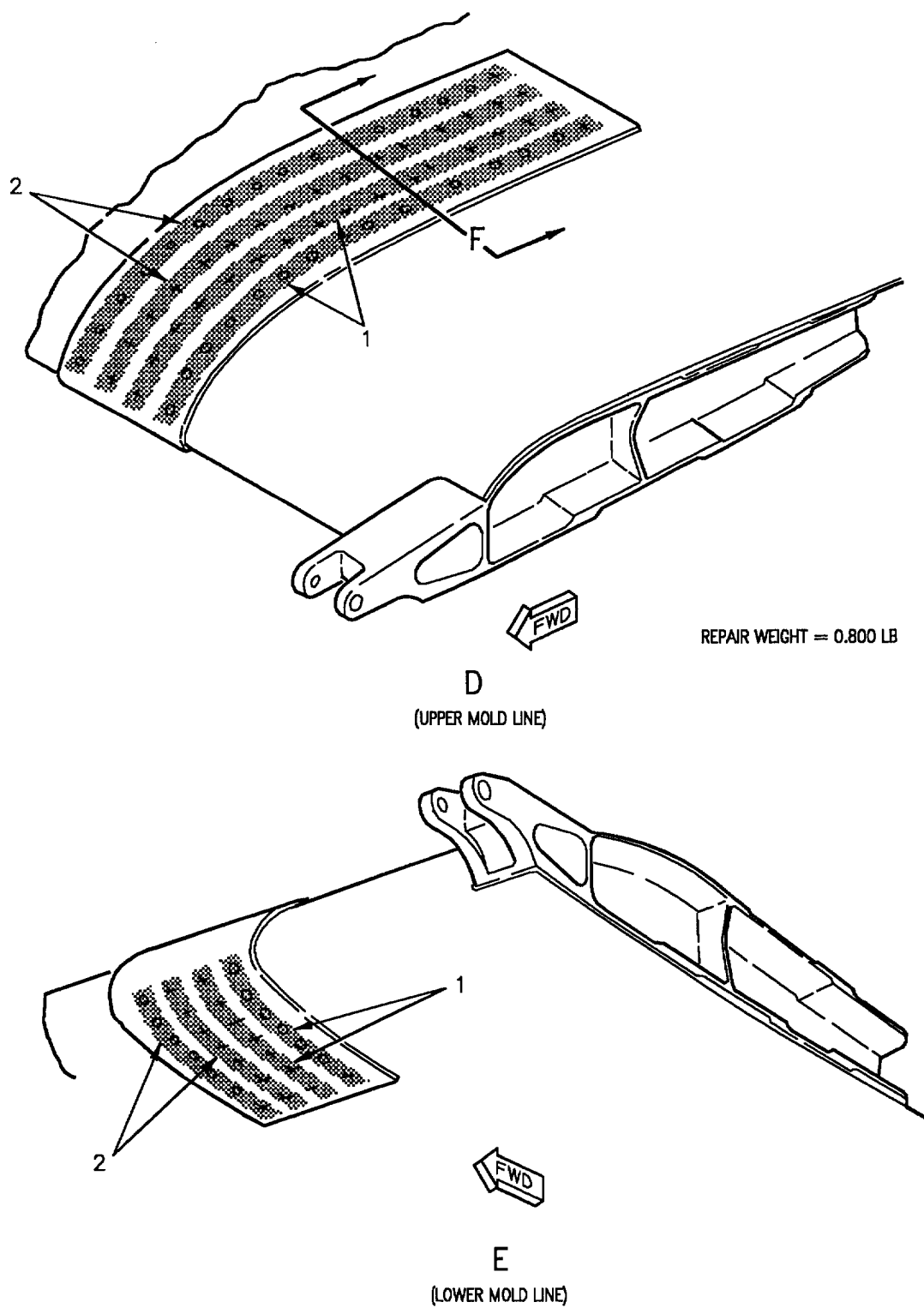


Figure 5. Outboard Edge Damage Repair (Sheet 3)

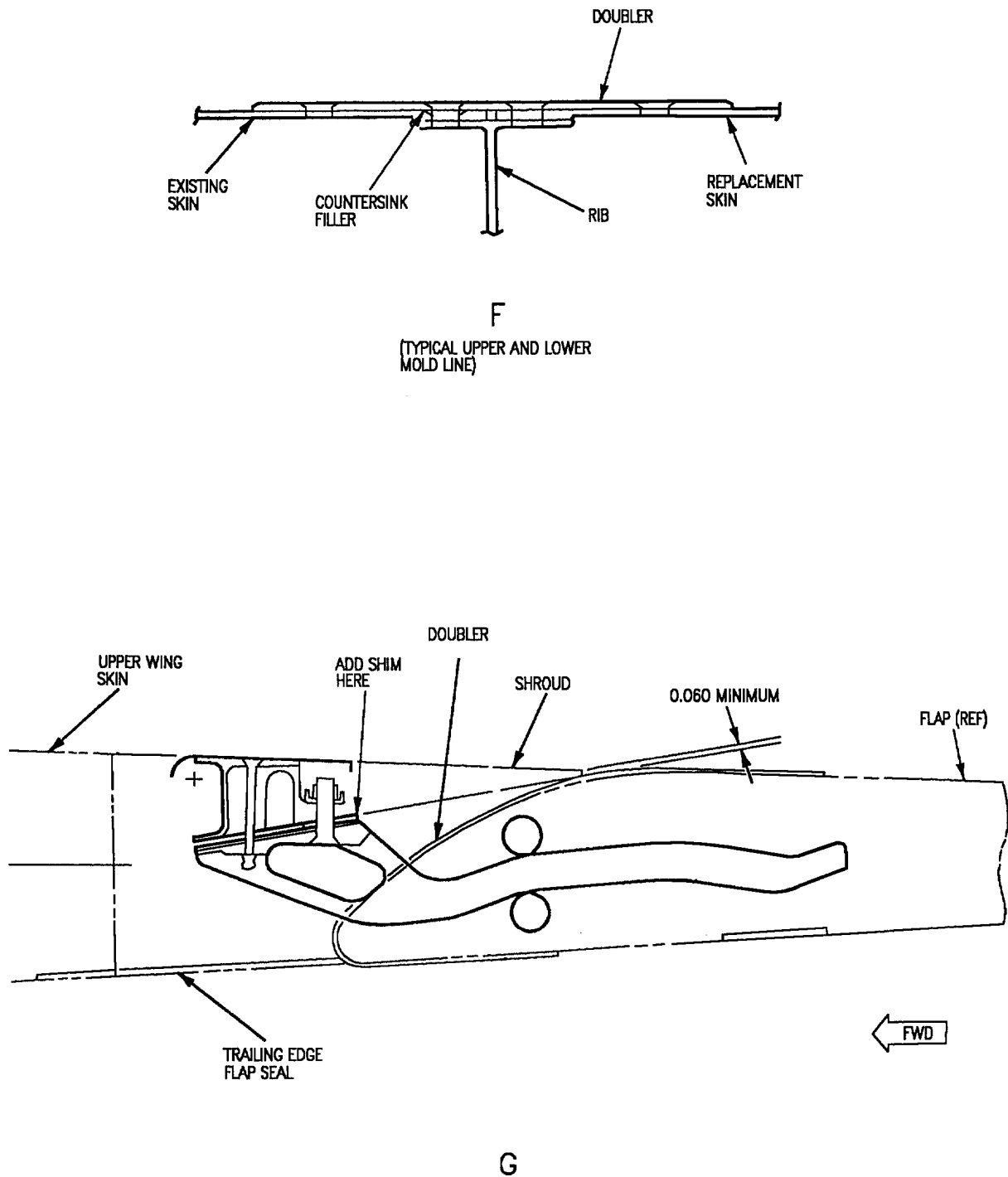


Figure 5. Outboard Edge Damage Repair (Sheet 4)





IDX NO.	EFT		NOMENCLATURE	PART NUMBER
1			Jo-Bolt	PLT1064-6
2			Jo-Bolt	PLT1064-5
<b>LEGEND</b>				
 Length determined on installation.				
 Typical except for hole in upper and lower stringers. Use existing holes in stringers.				

Figure 5. Outboard Edge Damage Repair (Sheet 5)

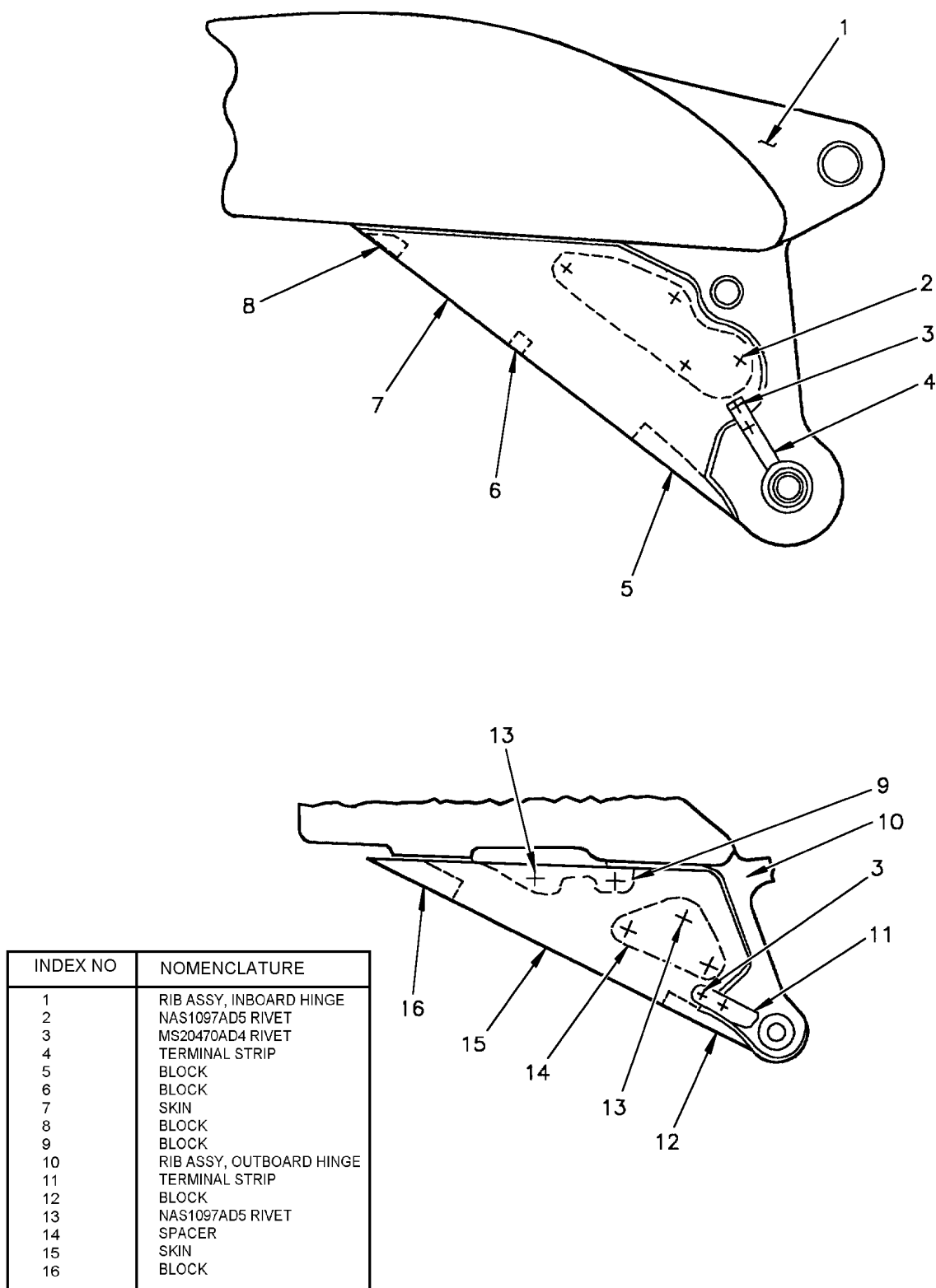


Figure 6. Inboard and Outboard Hinge Skin Replacement

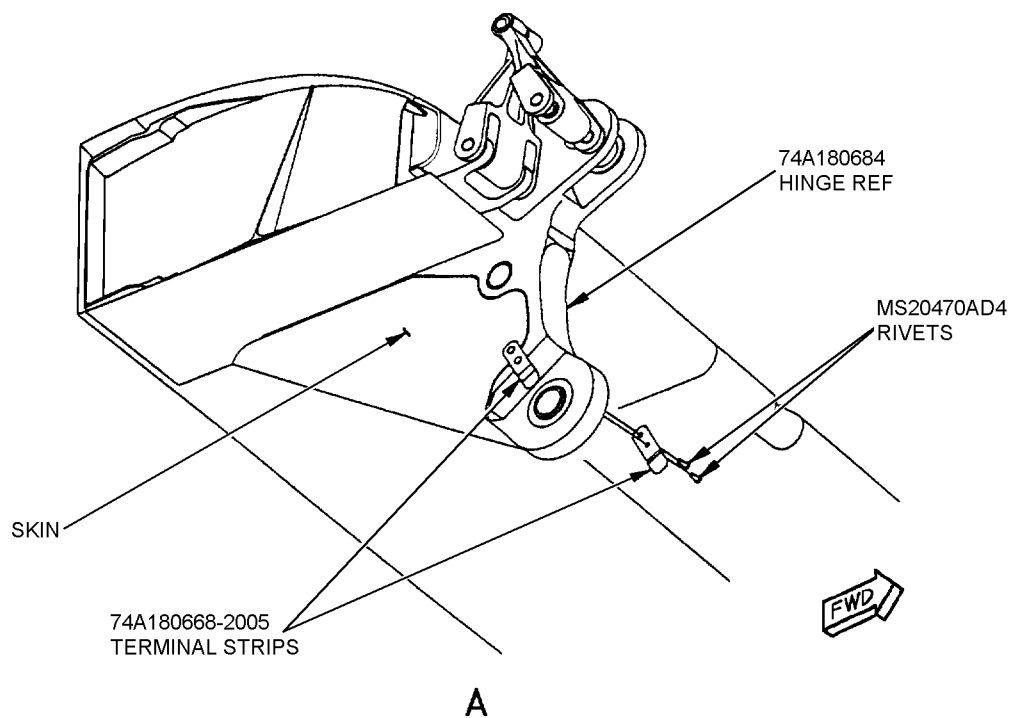
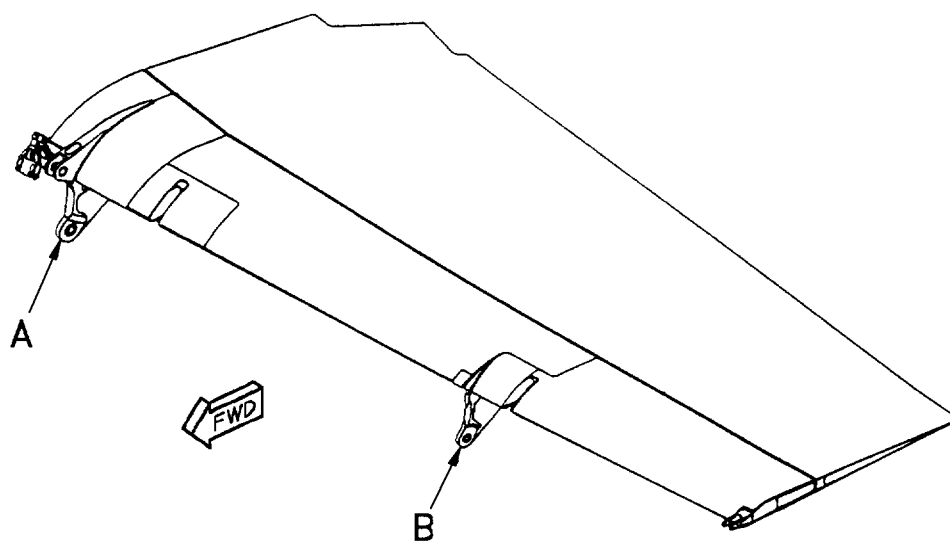


Figure 7. Electrical Bonding Spring Replacement (Sheet 1)

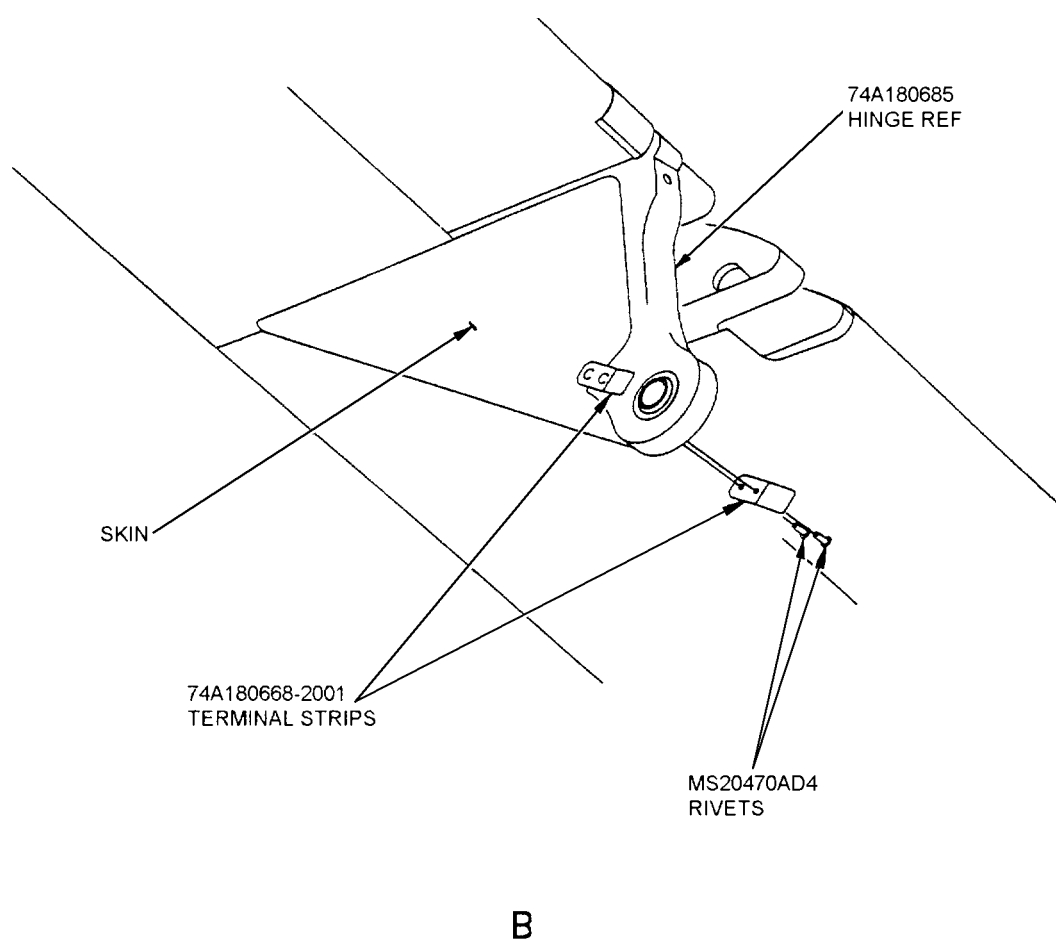


Figure 7. Electrical Bonding Spring Replacement (Sheet 2)





## ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

## TRAILING EDGE FLAP, LEADING EDGE STRUCTURE

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Trailing Edge Flap, Leading Edge Composite Skins .....	WP008 04
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Flap, Wing Landing and Shroud - Installation of .....	FIG 011 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Bearing Removal and Installation Tool Set Part No. 74D110166 .....	WP004 38
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repairs .....	A1-F18AC-SRM-250
Aluminum and Titanium Sheet, Formed Structure .....	WP033 00
Blending .....	WP038 00
Use of Equipment History Record (EHR) Card .....	WP048 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509
Structural Hardware .....	NAVAIR 01-1A-8

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Negligible Damage .....	2
Repairable Damage .....	2
Repairs .....	3
Permanent Repairs .....	3
Replacements .....	37
Bearings .....	37
Bumper, 74A180648, Trailing Edge Flap Roller Support .....	37

## Record of Applicable Technical Directives

None

## Support Equipment Required

None

## Materials Required

None

1. **DAMAGE EVALUATION.** See figures 1 and 2.

2. Damage is classified as negligible and repairable. The types of materials used are shown on figure

1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits listed require depot engineering disposition. Reworking of cold worked holes is depot maintenance.

3. **ALLOWABLE REPAIR WEIGHTS.** See figure 3. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on stabilator for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restrict future repairs within this zone, proceed with repair and enter required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds need not be recorded on EHR card.

a. For repairs which overlap into more than one repair weight zone, select the zone that has the most

restrictive repair criteria. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone all of the repair weight should be added to that zone.

b. Weight of any repairs installed per (WP008 02) need to be included because they are covered by the referenced repair weight zones.

4. **NEGLIGIBLE DAMAGE.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

5. **REPAIRABLE DAMAGE.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

## NOTE

The limits in table 2 apply after blending the damage.

a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fastener diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, overstructure, only one repair per land.

e. Dents exceeding the limits of table 1 must be repaired.

## 6. REPAIRS.

7. Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repairs are made using aluminum patches. Repair type definition are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

8. **PERMANENT REPAIRS.** Determine weight of each repair per tables 3 through 6.

9. **Scratches, Nicks, Gouges, or Corrosion.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). Blend areas indicated on figure 2, detail AC and detail AD as below. If, after blending, the damage limits of table 2 are exceeded, repair aluminum formed structure. Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

a. Blending of areas indicated on detail AC.

### NOTE

Do not blend lugs past the machine cut between lugs.

(1) Blend area to maximum limits indicated on detail AE.

b. Blending area indicated on detail AD.

(1) Remove wear strip and spacer by removing rivet (NAVAIR 01-1A-8).

(2) Remove plastic filler compound by sanding (A1-F18AC-SRM-250, WP038 00).

### NOTE

Do not blend lugs past the machine cut between lugs.

(3) Blend area to maximum limits indicated on detail AE.

(4) Polish blended area (A1-F18AC-SRM-250, WP038 00).

(5) Plug rivet hole by installing rivet same as removed in step (1) (NAVAIR 01-1A-8).

(6) Refinish blended area (A1-F18AC-SRM-500, WP027 00).

c. Repair aluminum formed structure that exceeds damage limits of table 2 after blending.

(1) Scratches - make crack repair.

(2) Nicks, gouges, or corrosion - make hole repair.

10. **Cracks.** In repair zone A4, repair cracks to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

a. Cut out damage.

b. In repair zone A4 install repair one through six. Select the repair that can be adapted to the damaged part.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

11. **Holes.** In repair zone A4, repair holes to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

a. Cut out damage.

b. In repair zone A4, install repair one through six. Select the repair that can be adapted to the damaged part.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

12. Dents. In repair zone A4, repair dents to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

b. In repair zone A4, install repair one through six. Select the repair that can be adapted to the damaged part.

a. Cut out damage.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

Table 1. Negligible Damage Limits


















Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1)	Rib Upper Flange Zone B4	0.070	0.0006	0.0006	100%		
		0.090	0.0006	0.0006	100%		
		0.150	0.0006	0.0006	100%		
	Lower Flange Zone B4	0.070	0.0006	0.0006	100%		
		0.080	0.0006	0.0006	100%		
		0.070	0.0006	0.0006	100%		
	Zone A4 Webs	0.070	0.0006	0.0006	100%		
		0.060	0.0006	0.0006	100%		
Fig 1 (2)	Intercostal Zone B4	0.050	0.0006	0.0006	100%	0.025	5%
	Zone A4	0.050	0.0006	0.0006	100%	0.025	5%
Fig 1 (3)	Stringer Zone A4	0.055	0.0006	0.0006	100%		5%
Fig 1 (4)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.25	10%
Fig 1 (5)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (6)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (7)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.015	10%

Table 1. Negligible Damage Limits (Continued)














Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (8)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.015	10%
Fig 1 (9)	Stringer Zone A4	0.050	0.0006	0.0006	100%		5%
		0.060	0.0006	0.0006	100%		5%
		0.070	0.0006	0.0006	100%		5%
		0.094	0.0006	0.0006	100%		5%
Fig 1 (10)	Rib Zone A4	Various	0.0006	0.0006	100%		
Fig 1 (11)	Rib Zone A4	0.050	0.0006	0.0006	100%		5%
		0.060	0.0006	0.0006	100%		5%
		0.070	0.0006	0.0006	100%		5%
		0.080	0.0006	0.0006	100%		5%
Fig 1 (12)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (13)	Stringer Zone A4	0.051	0.0006	0.0006	100%		5%
		0.075	0.0006	0.0006	100%		5%
Fig 1 (14)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (15)	Support Zone A4	Various	0.0006	0.0006	100%		5%
Fig 1 (16)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.015	10%
Fig 1 (17)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.25	10%
Fig 1 (18)	Intercostal Zone A4	0.063	0.0006	0.0006	100%	0.031	5%

Table 1. Negligible Damage Limits (Continued)




















































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (19)	Support Zone B4 Zone A4	Various Various	0.0006 0.0006	0.0006 0.0006	100% 100%	 	 5%
Fig 1 (20)	Rib Zone B4 Zone A4	Various Various	0.0006 0.0006	0.0006 0.0006	100% 100%	 	 
Fig 1 (21)	Plate Zone B4 Zone A4	0.100 0.100	0.0006 0.0006	0.0006 0.0006	100% 100%	 	 
Fig 1 (22)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (23)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (24)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (25)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (26)	Stringer Zone B4 Zone A4	Various Various	0.0006 0.0006	0.0006 0.0006	100% 100%	 	 
Fig 1 (27)	Rib Zone A4	0.050	0.0006	0.0006	100%	0.025	10%
Fig 1 (28)	Rib Zone B4 Zone A4	0.080 0.060 0.080	0.0006 0.0006 0.0006	0.0006 0.0006 0.0006	100% 100% 100%	  	  5%
Fig 1 (29)	Intercostal Zone B4 Zone A4	0.080 0.080	0.0006 0.0006	0.0006 0.0006	100% 100%	0.040 0.040	 

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt	
				Depth	Area			
Fig 1 (30)	Support Zone B4 Zone A4	Various Various 0.060	0.0006 0.0006 0.0006	0.0006 0.0006 0.0006	100% 100% 100%	  	 5% 	
Fig 1 (31)	Rib Upper Flange Zone B4	0.070	0.0006	0.0006	100%			
		0.080	0.0006	0.0006	100%			
		Zone A4	0.070	0.0006	0.0006	100%		
			0.080	0.0006	0.0006	100%		
	Lower Flange Zone A4	0.070	0.0006	0.0006	100%			
		0.090	0.0006	0.0006	100%		5% 	
		0.115	0.0006	0.0006	100%			
		0.240	0.0006	0.0006	100%			
	Webs Zone A4	0.055	0.0006	0.0006	100%			
		0.080	0.0006	0.0006	100%			
	Fig 1 (32)	Rib Zone B4	Various	0.0006	0.0006	100%		
	Fig 1 (33)	Support Zone B4	Various	0.0006	0.0006	100%		

NOTE


 None allowed.

Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scatch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (1)	Rib Upper Flange Zone B4	0.090	0.036	0.018	0.018		0.18	
		0.070	0.050	0.014	0.014		0.14	
		0.150	0.060	0.020	0.020		0.020	
	Lower Flange Zone B4	0.080	0.036	0.016	0.016		0.016	
		0.070	0.050	0.014	0.014		0.014	
		0.070	0.060	0.014	0.014		0.014	
	Webs Zone A4	0.060		0.012	0.012	4%	0.012	4%
Fig 1 (2)	Intercostal Zone B4 Zone A4	0.050	0.032	0.010	0.010		0.010	
		0.050	0.050	0.010	0.010		0.010	
Fig 1 (3)	Stringer Zone A4	0.055	0.050	0.011	0.011		0.011	
Fig 1 (4)	Rib Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (5)	Rib Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (6)	Rib Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (7)	Rib Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (8)	Rib Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (9)	Stringer Zone A4	0.094	0.050	0.018	0.018		0.018	
		0.070	0.050	0.014	0.014		0.014	
		0.060	0.050	0.012	0.012		0.012	
		0.050	0.050	0.010	0.010		0.010	



Table 2. Repairable Damage Limits After Blending (Continued)































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scatch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (10)	Rib Zone A4	Various	0.050	0.012	0.012		0.012	
Fig 1 (11)	Rib Zone A4	0.080	0.040	0.016	0.016		0.016	
		0.070	0.040	0.014	0.014		0.014	
		0.060	0.040	0.012	0.012		0.012	
	Webs Zone A4	0.060		0.012	0.012	4%	0.012	4%
		0.050		0.010	0.010	4%	0.010	4%
Fig 1 (12)	Rib Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (13)	Stringer Zone A4	0.075	0.050	0.015	0.015		0.015	
		0.051	0.050	0.010	0.010		0.010	
Fig 1 (14)	Rib Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (15)	Support Zone A4	Various	0.050	0.014	0.014		0.014	
Fig 1 (16)	Rib Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (17)	Rib Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (18)	Intercostal Zone A4	0.063	0.050	0.012	0.012		0.012	
Fig 1 (19)	Support Zone B4	Various	0.035	0.012	0.012		0.012	
	Zone A4	Various	0.050	0.012	0.012		0.012	

Table 2. Repairable Damage Limits After Blending (Continued)




















Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scatch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (20)	Rib	Various	0.060	0.020	0.020		0.020	
	Zone B4	Various	0.060	0.020	0.020		0.020	
	Zone A4	0.220		0.030	0.030	4%	0.030	4%
		0.120		0.024	0.024	4%	0.024	4%
		0.100		0.020	0.020	4%	0.020	4%
Fig 1 (21)	Plate							
	Zone B4	0.100	0.035	0.020	0.020		0.020	
	Zone A4	0.100	0.050	0.025	0.020		0.020	
Fig 1 (22)	Rib							
	Zone A4	0.050	0.050	0.010	0.010		0.010	
Fig 1 (23)	Rib							
	Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (24)	Rib							
	Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (25)	Rib							
	Zone A4	0.050	0.040	0.010	0.010		0.010	

Table 2. Repairable Damage Limits After Blending (Continued)






























































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scatch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (26)	Stringer Zone B4	0.195	0.035	0.039	0.039		0.039	
		0.190	0.035	0.038	0.038		0.038	
		0.175	0.035	0.035	0.035		0.035	
		0.171	0.035	0.034	0.034		0.034	
		0.105	0.035	0.021	0.021		0.021	
		0.100	0.035	0.020	0.020		0.020	
		0.095	0.035	0.019	0.019		0.019	
		0.090	0.035	0.018	0.018		0.018	
		0.085	0.035	0.017	0.017		0.017	
		0.080	0.035	0.016	0.016		0.016	
		0.075	0.035	0.015	0.015		0.015	
	Zone A4	0.195	0.050	0.039	0.039		0.039	
		0.190	0.050	0.038	0.038		0.038	
		0.175	0.050	0.035	0.035		0.035	
		0.171	0.050	0.034	0.034		0.034	
		0.105	0.050	0.021	0.021		0.021	
		0.100	0.050	0.020	0.020		0.020	
		0.095	0.050	0.019	0.019		0.019	
		0.090	0.050	0.018	0.018		0.018	
		0.085	0.050	0.017	0.017		0.017	
		0.080	0.050	0.016	0.016		0.016	
		0.075	0.050	0.015	0.015		0.015	
Fig 1 (27)	Rib Zone A4	0.050	0.040	0.010	0.010		0.010	
Fig 1 (28)	Rib Zone B4	0.080	0.035	0.016	0.016		0.016	
	Zone A4	0.080	0.050	0.016	0.016		0.016	
		0.060	0.050	0.012	0.012	4%	0.012	4%
Fig 1 (29)	Intercostal Zone B4	0.080	0.035	0.016	0.016		0.016	
	Zone A4	0.080	0.050	0.016	0.016		0.016	
Fig 1 (30)	Support Zone B4	Various	0.035	0.012	0.012		0.012	
	Zone A4	Various	0.050	0.012	0.012		0.012	
		0.060		0.012	0.012		0.012	

Table 2. Repairable Damage Limits After Blending (Continued)

























Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scatch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (31)	Rib Upper Flange Zone B4	0.080	0.035	0.016	0.016		0.016	
		0.070	0.035	0.014	0.014		0.014	
		0.080	0.050	0.016	0.016		0.016	
		0.070	0.050	0.014	0.014		0.014	
	Lower Flange Zone A4	0.240	0.050	0.025	0.025		0.025	
		0.115	0.050	0.023	0.023		0.023	
		0.090	0.050	0.018	0.018		0.018	
		0.070	0.050	0.014	0.014		0.014	
	Webs Zone A4	0.080		0.016	0.016	4%	0.016	4%
		0.055		0.011	0.011	4%	0.011	4%
Fig 1 (32)	Rib Zone B4	Various	0.060	0.016	0.016		0.016	
Fig 1 (33)	Support Zone B4	Various	0.035	0.016	0.016		0.016	
<b>NOTES</b>  Rework of flange is limited to 50% of flange width provided there is no damage around fasteners holes. Rework of webs is limited to 4% of web area.  None allowed.								

Table 3. Formed Structure Repair Weights in Pounds - Repair One 

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
Patch Thickness = 0.050						
0 - 0.50	0.12	0.12	0.12	0.12	0.13	0.14
0.51 - 0.75	0.12	0.13	0.13	0.13	0.13	0.14
0.76 - 1.00	0.13	0.13	0.14	0.14	0.14	0.15
1.01 - 1.25	0.14	0.14	0.14	0.14	0.14	0.16

Table 3. Formed Structure Repair Weights in Pounds - Repair One   
(Continued)

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
1.26 - 1.50	0.15	0.15	0.15	0.15	0.15	0.17
1.51 - 1.75	0.15	0.15	0.15	0.15	0.16	0.17
1.76 - 2.00	0.16	0.16	0.16	0.16	0.16	0.18
2.01 - 3.00	0.18	0.19	0.19	0.19	0.20	0.21
3.01 - 4.00	0.20	0.21	0.21	0.21	0.21	0.23
Patch Thickness = 0.080						
0 - 0.50	0.31	0.31	0.32	0.32	0.32	0.35
0.51 - 0.75	0.32	0.32	0.33	0.33	0.33	0.35
0.76 - 1.00	0.33	0.33	0.33	0.33	0.34	0.36
1.01 - 1.25	0.35	0.35	0.36	0.36	0.36	0.39
1.26 - 1.50	0.36	0.36	0.36	0.37	0.37	0.39
1.51 - 1.75	0.38	0.38	0.39	0.39	0.39	0.42
1.76 - 2.00	0.39	0.39	0.39	0.40	0.40	0.43
2.01 - 3.00	0.45	0.45	0.45	0.46	0.46	0.49
3.01 - 4.00	0.49	0.49	0.50	0.50	0.51	0.54
Patch Thickness = 0.100						
0 - 0.50	0.35	0.35	0.35	0.35	0.36	0.39
0.51 - 0.75	0.35	0.36	0.36	0.36	0.37	0.40
0.76 - 1.00	0.36	0.36	0.37	0.37	0.38	0.41
1.01 - 1.25	0.39	0.39	0.39	0.40	0.40	0.43
1.26 - 1.50	0.40	0.40	0.40	0.41	0.41	0.44
1.51 - 1.75	0.42	0.42	0.43	0.43	0.44	0.47
1.76 - 2.00	0.43	0.43	0.44	0.44	0.45	0.48

Table 3. Formed Structure Repair Weights in Pounds - Repair One   
(Continued)


Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
2.01 - 3.00	0.50	0.50	0.51	0.51	0.52	0.55
3.01 - 4.00	0.55	0.55	0.56	0.56	0.57	0.61
NOTE						
 Repair One defined per A1-F18AC-SRM-250, WP033 00.						

Table 4. Formed Structure Repair Weights in Pounds -  
Repairs Two and Three 

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
Patch Thickness = 0.050						
0 - 0.50	-	-	-	-	0.05	0.06
0.51 - 0.75	-	-	0.05	0.05	0.05	0.06
0.76 - 1.00	0.05	0.05	0.05	0.05	0.05	0.06
1.01 - 1.25	0.05	0.05	0.05	0.05	0.05	0.07
1.26 - 1.50	0.05	0.05	0.06	0.06	0.06	0.07
1.51 - 1.75	0.06	0.06	0.06	0.06	0.06	0.07
1.76 - 2.00	0.06	0.06	0.06	0.06	0.07	0.08
2.01 - 3.00	0.07	0.07	0.07	0.08	0.08	0.09
3.01 - 4.00	0.08	0.08	0.08	0.09	0.09	0.11
Patch Thickness = 0.080						
0 - 0.50	0.11	0.11	0.11	0.11	0.11	0.13
0.51 - 0.75	0.11	0.11	0.11	0.11	0.12	0.13
0.76 - 1.00	0.11	0.11	0.12	0.12	0.12	0.14

**Table 4. Formed Structure Repair Weights in Pounds -  
Repairs Two and Three 2 (Continued)**

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
1.01 - 1.25	0.12	0.12	0.13	0.13	0.13	0.15
1.26 - 1.50	0.13	0.13	0.13	0.13	0.14	0.16
1.51 - 1.75	0.14	0.14	0.14	0.14	0.15	0.17
1.76 - 2.00	0.14	0.14	0.14	0.15	0.15	0.17
2.01 - 3.00	0.16	0.17	0.17	0.17	0.18	0.20
3.01 - 4.00	0.18	0.19	0.19	0.19	0.20	0.23
Patch Thickness = 0.100						
0 - 0.50	0.12	0.12	0.12	0.12	0.13	0.15
0.51 - 0.75	0.12	0.12	0.13	0.13	0.13	0.15
0.76 - 1.00	0.12	0.13	0.13	0.13	0.14	0.16
1.01 - 1.25	0.14	0.14	0.14	0.15	0.15	0.17
1.26 - 1.50	0.14	0.14	0.15	0.15	0.15	0.18
1.51 - 1.75	0.15	0.15	0.16	0.16	0.16	0.19
1.76 - 2.00	0.15	0.16	0.16	0.16	0.17	0.20
2.01 - 3.00	0.18	0.19	0.19	0.19	0.20	0.23
3.01 - 4.00	0.21	0.21	0.21	0.22	0.22	0.26
NOTE						
1. A dash (-) indicates a weight less than 0.05 pounds.						
<span style="border: 1px solid black; padding: 0 2px;">2</span> Repairs Two and Three defined per A1-F18AC-SRM-250, WP033 00.						

**Table 5. Formed Structure Repair Weights in Pounds - Repair Four 2**

Patch Thickness	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
0.050	-	-	-	-	-	-

Table 5. Formed Structure Repair Weights in Pounds - Repair Four 2  
(Continued)

Patch Thickness	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
0.051 - 0.080	-	-	-	-	-	0.05
0.081- 0.100	-	-	-	-	-	0.06

**NOTE**

1. A dash (-) indicates a weight less than 0.05 pounds.

2. Repair Four defined per A1-F18AC-SRM-25, WP033 00.

Table 6. Formed Structure Repair Weights in Pounds - Repairs Five and Six 2

Patch Thickness	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
0.050	-	0.05	0.05	0.05	0.05	0.07
0.051 - 0.080	0.10	0.10	0.11	0.11	0.12	0.15
0.081 - 0.100	0.11	0.12	0.12	0.13	0.14	0.18

**NOTE**

1. A dash (-) indicates a weight less than 0.05 pounds.

2. Repairs Five and Six defined per A1-F18AC-SRM-25, WP033 00.



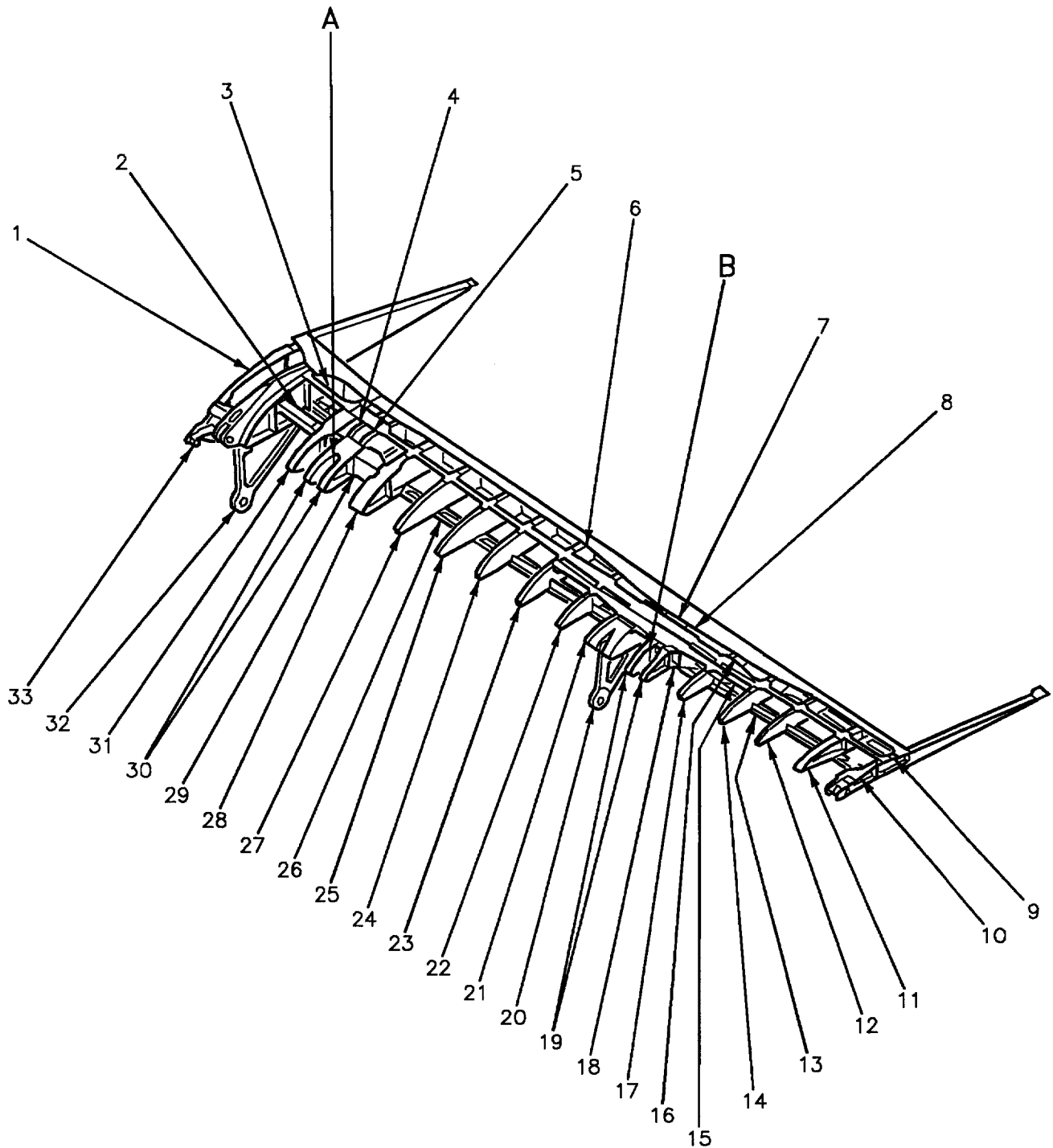


Figure 1. Material Index (Sheet 1)

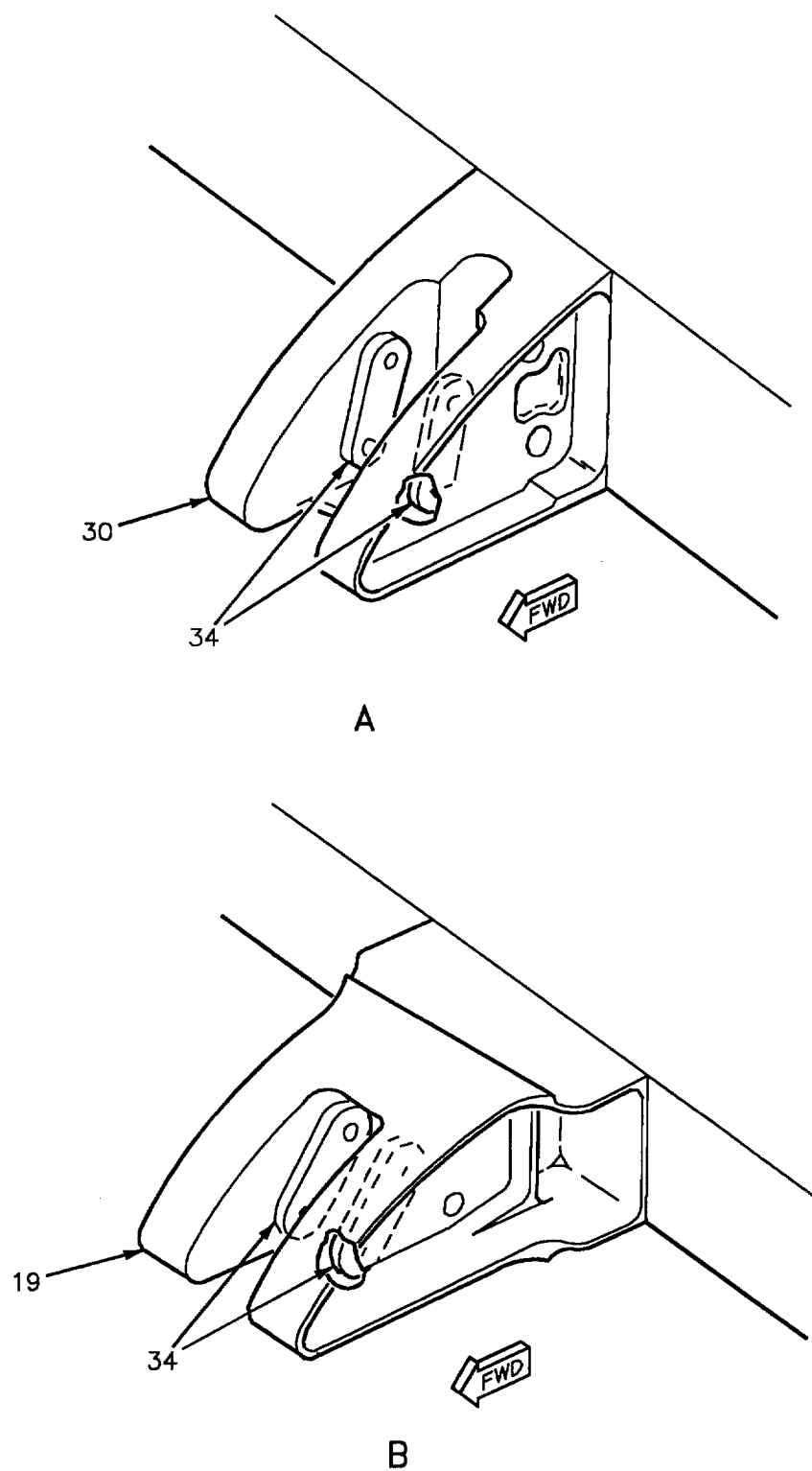


Figure 1. Material Index (Sheet 2)


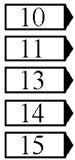
Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Rib 74A180755-2001, -2002	2.00 Sheet	7075-T7351 Al Aly
2		Intercostal 74A180732-2005, -2006 74A180732-2007, -2008	0.050 Sheet	7075-T6 Alclad
3		Stringer 74A180642-2023, -2024	Extrusion	7075-T73 Al Aly
4		Rib 74A180680-2003, -2004	0.050 Sheet	7075-T6 Alclad
5		Rib 74A180681-2003, -2004	0.050 Sheet	7075-T6 Alclad
6		Rib 74A180731-2003, -2004	0.050 Sheet	7075-T6 Alclad
7		Rib 74A180682-2001, -2002	0.050 Sheet	7075-T6 Alclad
8		Rib 74A180683-2001, -2002	0.050 Sheet	7075-T6 Alclad
9		Stringer 74A180734-2001, -2002	Extrusion	7075-T73 Al Aly
10		Rib 74A180748-2001, -2002 74A180748-2003 74A180748-2004 74A180748-2005 74A180748-2006	2.25 Sheet	7075-T7351 Al Aly
11		Rib 74A180744-2001, -2002	2.50 Plate	7075-T7351 Al Aly
12		Rib 74A180739-2001, -2002	0.050 Sheet	7075-T6 Alclad
13		Stringer 74A180642-2011, -2012	Extrusion	7075-T73 Al Aly
14		Rib 74A180737-2001, -2002	0.050 Sheet	7075-T6 Alclad
15		Support 74A180735-2001, -2002	Extrusion	7075-T73 Al Aly
16		Rib 74A180736-2003, -2004	0.050 Sheet	7075-T6 Alclad

Figure 1. Material Index (Sheet 3)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
17		Rib 74A180736-2001, -2002	0.050 Sheet	7075-T6 Alclad
18		Intercostal 74A180733-2001, -2002	0.063 Sheet	7075-T6 Alclad
19		Support 74A180687-2001, -2002	3.50 Plate	7075-T73651 Al Aly
20	<div>3</div> <div>16</div> <div>4</div> <div>17</div> <div>5</div> <div>18</div> <div>19</div>	Rib <div>12</div> 74A180685-2001 74A180685-2002 74A180685-2005 74A180685-2006 74A180685-2007 74A180685-2008 74A180685-2009, -2010	Machining	7050-T73652 Al Aly
21	<div>20</div> <div>21</div> <div>22</div> <div>23</div>	Plate 74A180758-2001 74A180758-2002 74A180758-2003 74A180758-2004	0.100 Sheet	7075-T6 Alclad
22		Rib 74A180731-2001, -2002	0.050 Sheet	7075-T6 Alclad
23		Rib 74A180730-2001, -2002	0.050 Sheet	7075-T6 Alclad
24		Rib 74A180749-2001, -2002	0.050 Sheet	7075-T6 Alclad
25		Rib 74A180747-2001, -2002	0.050 Sheet	7075-T6 Alclad
26		Stringer 74A180642-2021, -2022	Extrusion	7075-T73 Al Aly
27		Rib 74A180745-2001, -2002	0.050 Sheet	7075-T6 Alclad
28		Rib 74A180742-2001, -2002	3.00 Plate	7075-T7351 Al Aly
29		Intercostal 74A180732-2001, -2002	0.080 Sheet	7075-T6 Alclad
30		Support 74A180686-2003, -2004	4.00 Plate	7050-T73651 Al Aly

Figure 1. Material Index (Sheet 4)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
31	<div>24</div> <div>25</div> <div>26</div> <div>27</div>	Rib 74A180743-2003 74A180743-2004 74A180743-2005 74A180743-2006	Machining	7075-T7352 Al Aly
32	<div>6</div> <div>28</div> <div>7</div> <div>29</div> <div>30</div> <div>31</div>	Rib <div>12</div> 74A180684-2001 74A180684-2002 74A180684-2003 74A180684-2004 74A180684-2005 74A180684-2006	Machining	7050-T73652 Al Aly
33	<div>8</div> <div>9</div>	Support 74A180651-2007, -2008 74A180746-2001, -2002	Machining	7050-T73652 Al Aly
34		Bumper 74A180648-2003	Plate	Acetal-Fluoro-Carbon
<b>LEGEND</b>  <div>1</div> 161353 THRU 161519. <div>2</div> 161520 AND UP. <div>3</div> 161363 THRU 161716. <div>4</div> 161717 THRU 161931, 161987. <div>5</div> 161932 THRU 161986, 162394 THRU 163092, 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163116, 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132, 163136, 163139 THRU 163141, 163143, 163144, 163147, 163149, 163150, 163152, 163156, 163157, 163159, 163161, 163162. <div>6</div> 161353 THRU 161926. <div>7</div> 161353 THRU 161936. <div>8</div> 161353 THRU 161714. <div>9</div> 161715 AND UP. <div>10</div> 161353 THRU 161987, 162474. <div>11</div> 162394 THRU 162473, 162475 THRU 162980, 162893 THRU 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163115 THRU 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132. <div>12</div> Part of drive hinge assembly, for repair (WP008 04). <div>13</div> 162394 THRU 162473, 162475 THRU 162909, 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163115 THRU 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132. <div>14</div> 162891, 162892, 163095 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163118, 163120 THRU 163123, 163127, 163128, 163130, 163133 AND UP. <div>15</div> 163092, 163093, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163118, 163120 THRU 163123, 163127, 163128, 163130, 163133 AND UP. <div>16</div> 161353 THRU 161715. <div>17</div> 161716 THRU 161928, 161964 THRU 161968.				

Figure 1. Material Index (Sheet 5)

Idx No.	Eft	Nomenclature and Part No.	Description	Matrial
18		161929 THRU 161963, 161969 THRU 163092, 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163116, 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132, 163136, 163139 THRU 163141, 163143, 163144, 163147, 163149, 163150, 163152, 163156, 163157, 163159, 163161, 163162.		
19		163093, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163115, 163118, 163120 THRU 163122, 163127, 163128, 163130, 163133 THRU 163135, 163137, 163138, 163142, 163145, 163146, 163148, 163151, 163153 THRU 163155, 163158, 163160, 163163 AND UP.		
20		161353 THRU 161710.		
21		161353 THRU 161702, 161704.		
22		161711 AND UP.		
23		161703, 161705 AND UP.		
24		161353 THRU 161527.		
25		161353 THRU 161528.		
26		161528 AND UP.		
27		161702 AND UP.		
28		161353 THRU 161931, 161933 THRU 161936.		
29		161937 THRU 162900, 162906 THRU 162908, 163094, 163097, 163103, 163104, 163108, 163111 THRU 163113, 163116, 163117, 163119, 163124 THRU 163126, 163129, 163131, 163132, 163136, 163139 THRU 163141, 163143, 163144, 163147, 163149, 163150, 163152, 163156, 163157, 163159, 163161, 163162.		
30		162896 THRU 162905, 162909 THRU 163093, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163118, 163120 THRU 163122, 163127, 163128, 163130, 163133 THRU 163135, 163137, 163138, 163142, 163145, 163146, 163148, 163151 163153 THRU 163155, 163158, 163160 163163 AND UP.		
31		162901 THRU 162905, 162909 THRU 163093, 163095, 163096, 163098 THRU 163102, 163105 THRU 163107, 163109, 163110, 163114, 163118, 163120 THRU 163122, 163127, 163128, 163130, 163133 THRU 163135, 163137, 163138, 163142, 163145, 163146, 163148, 163151, 163153 THRU 163155, 163158, 163160, 163163 AND UP.		

Figure 1. Material Index (Sheet 6)

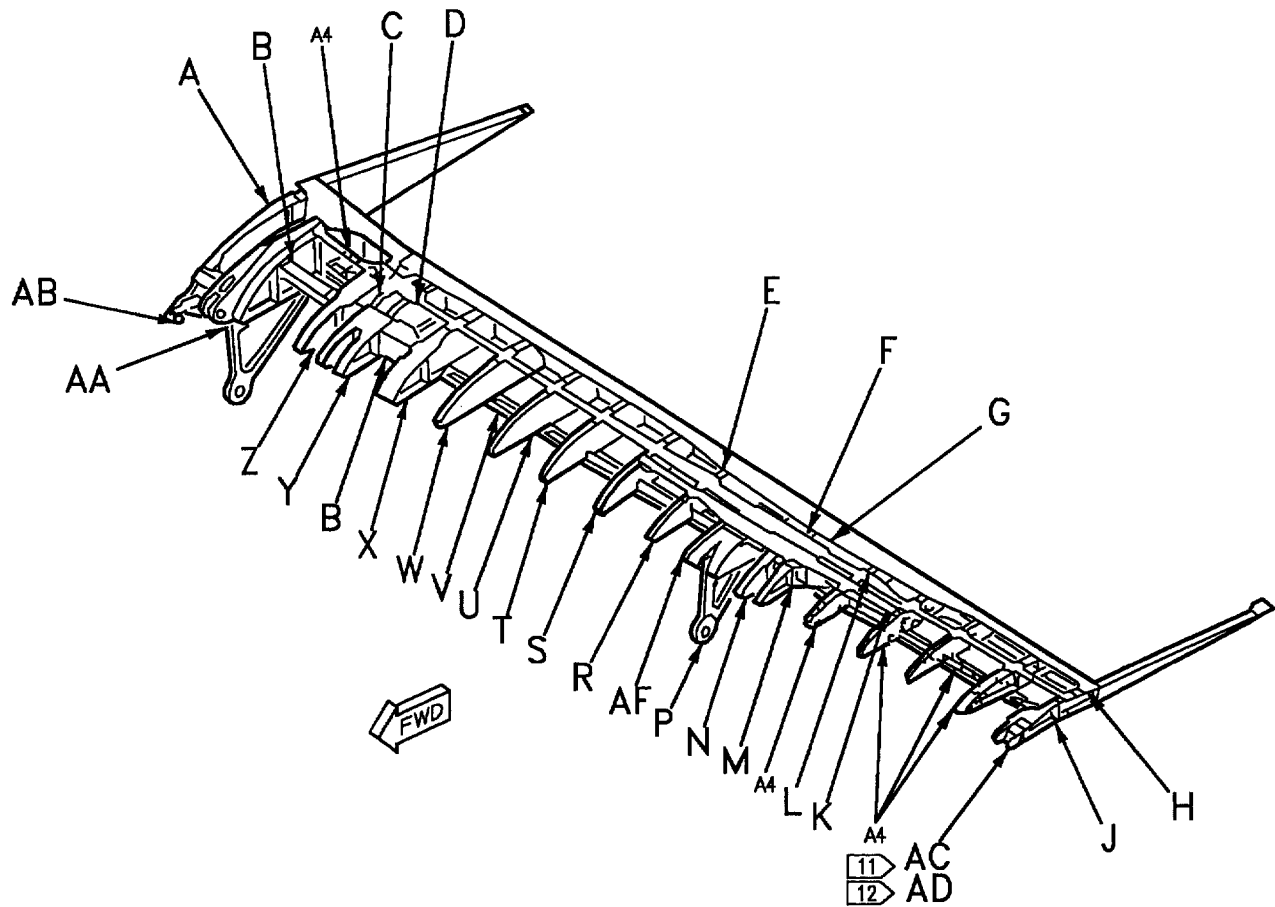


Figure 2. Repair Zones (Sheet 1)

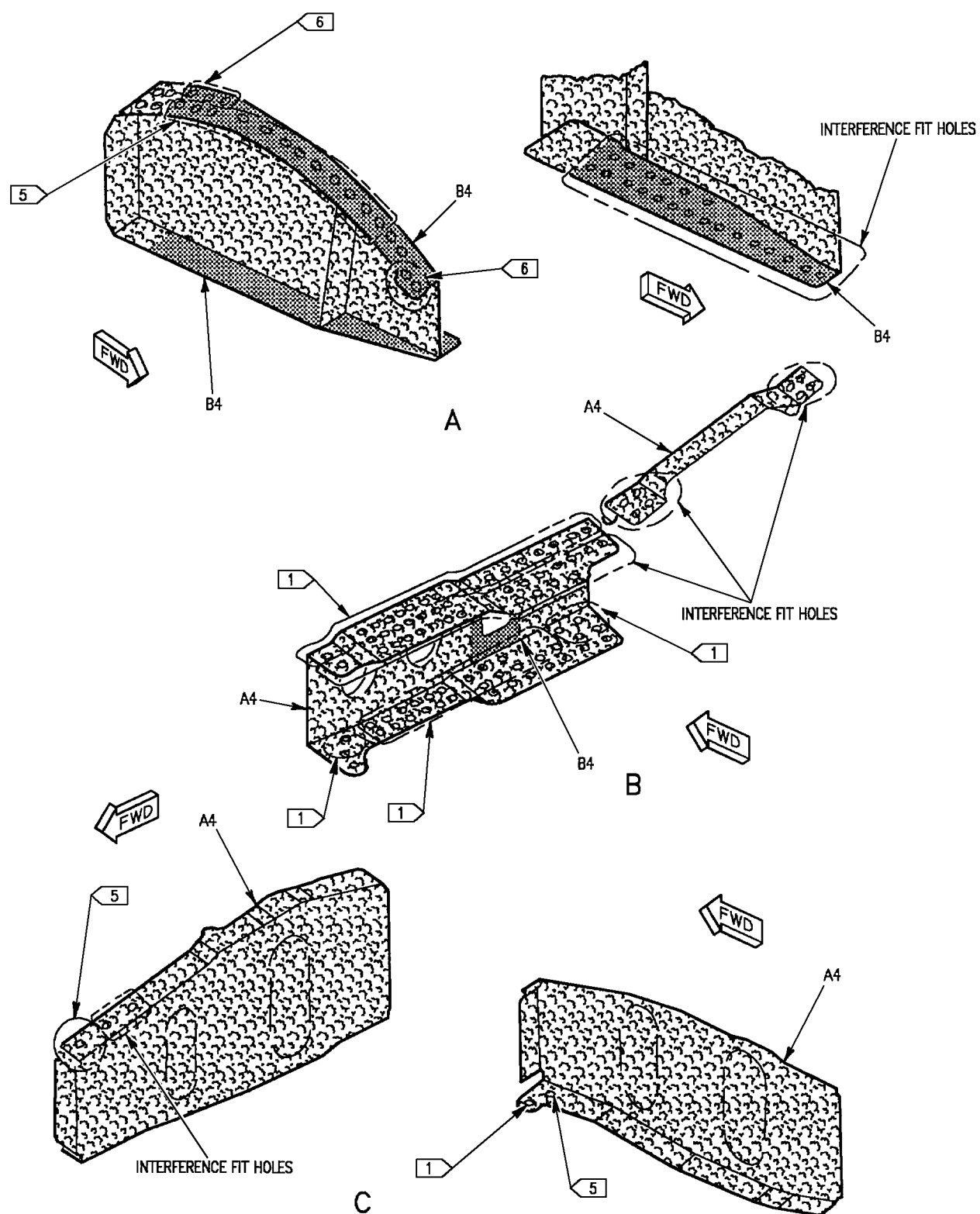


Figure 2. Repair Zones (Sheet 2)



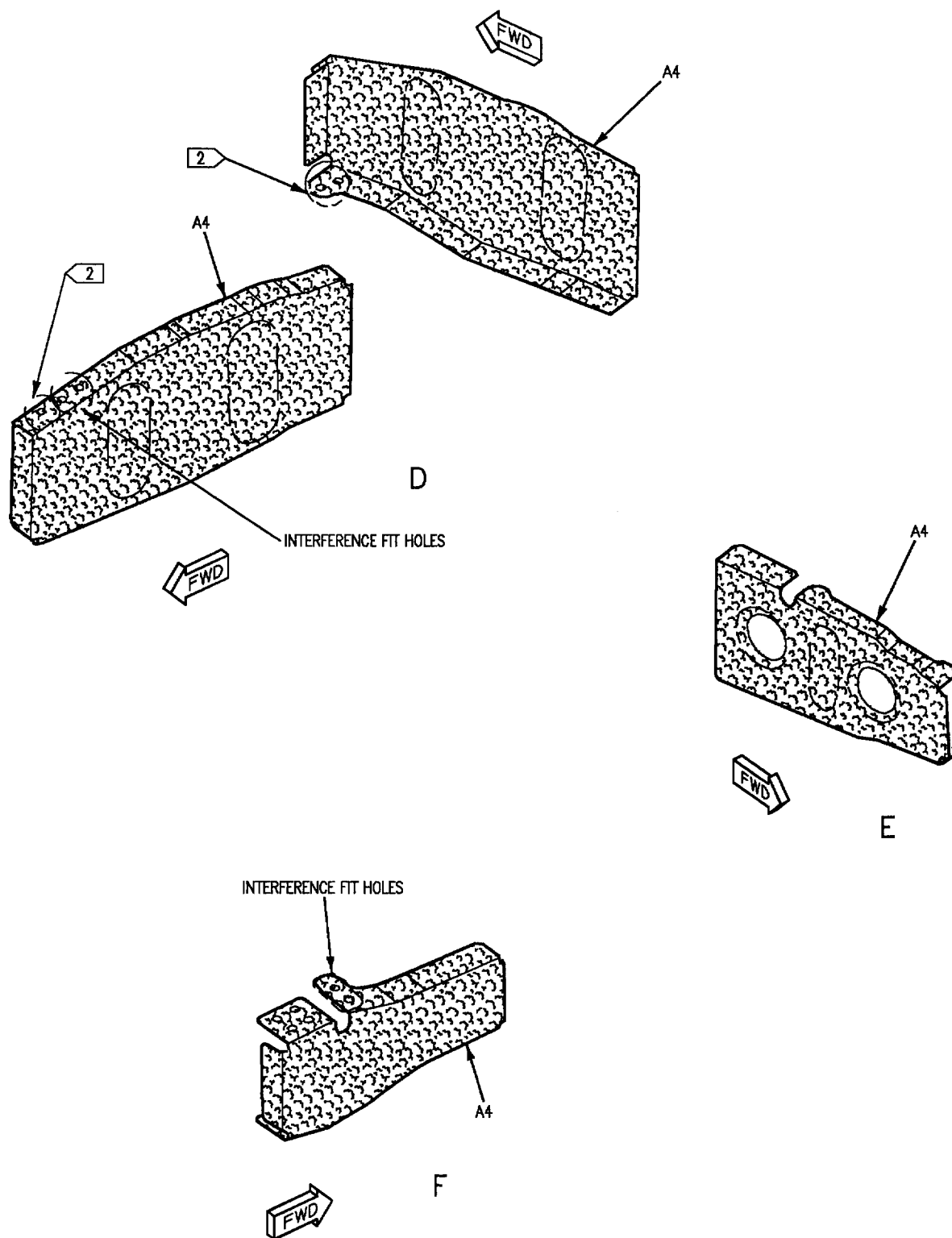


Figure 2. Repair Zones (Sheet 3)

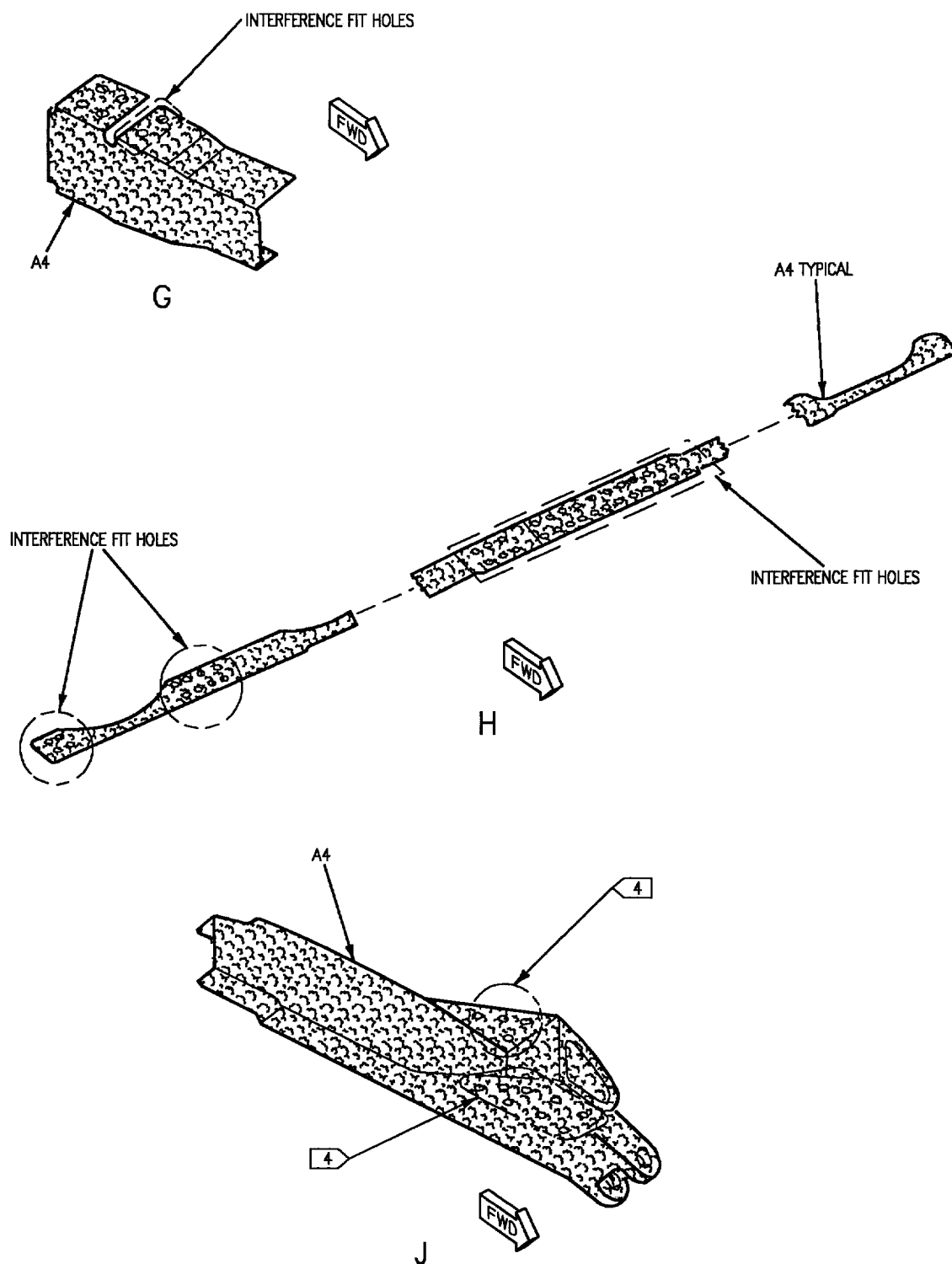


Figure 2. Repair Zones (Sheet 4)

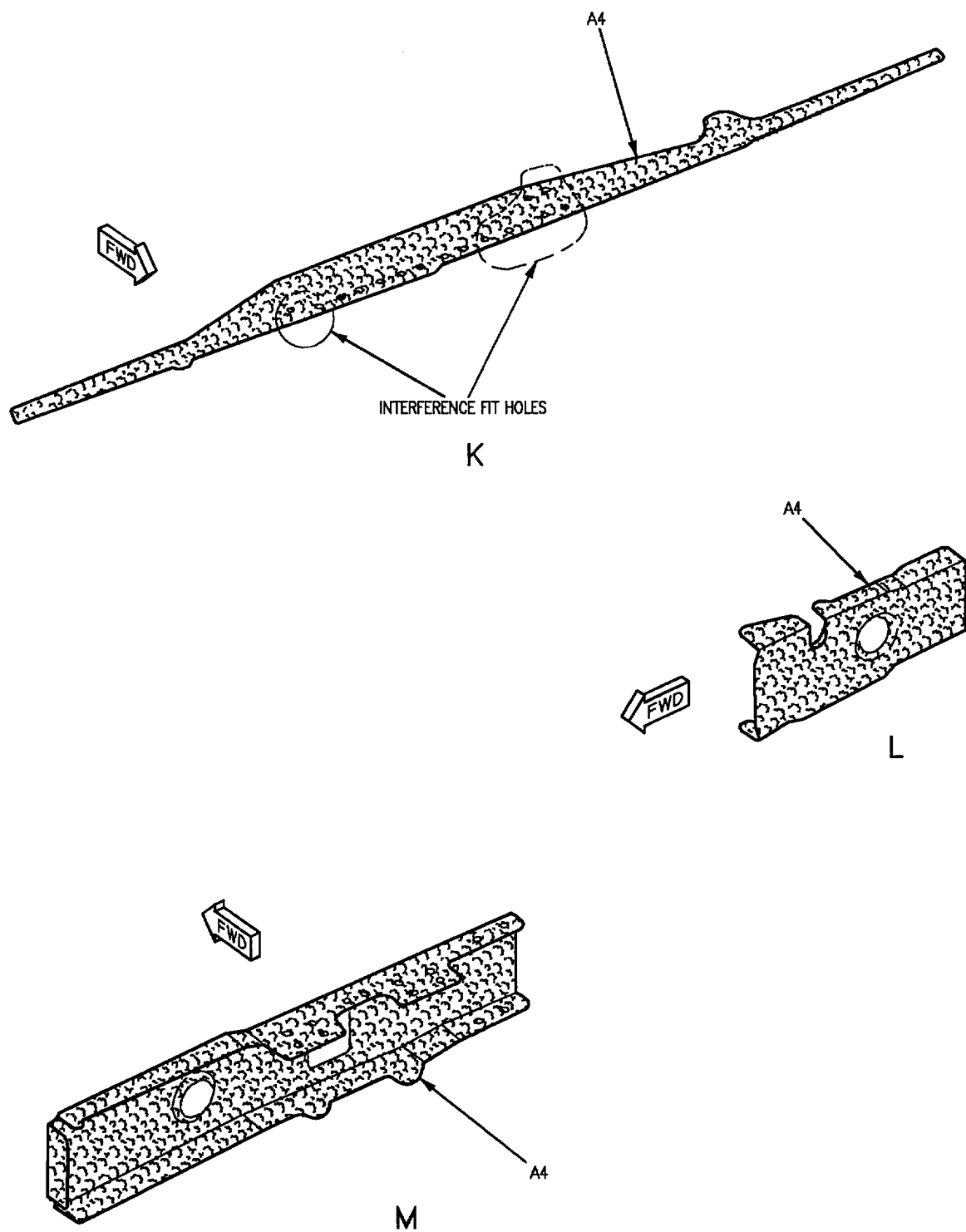


Figure 2. Repair Zones (Sheet 5)

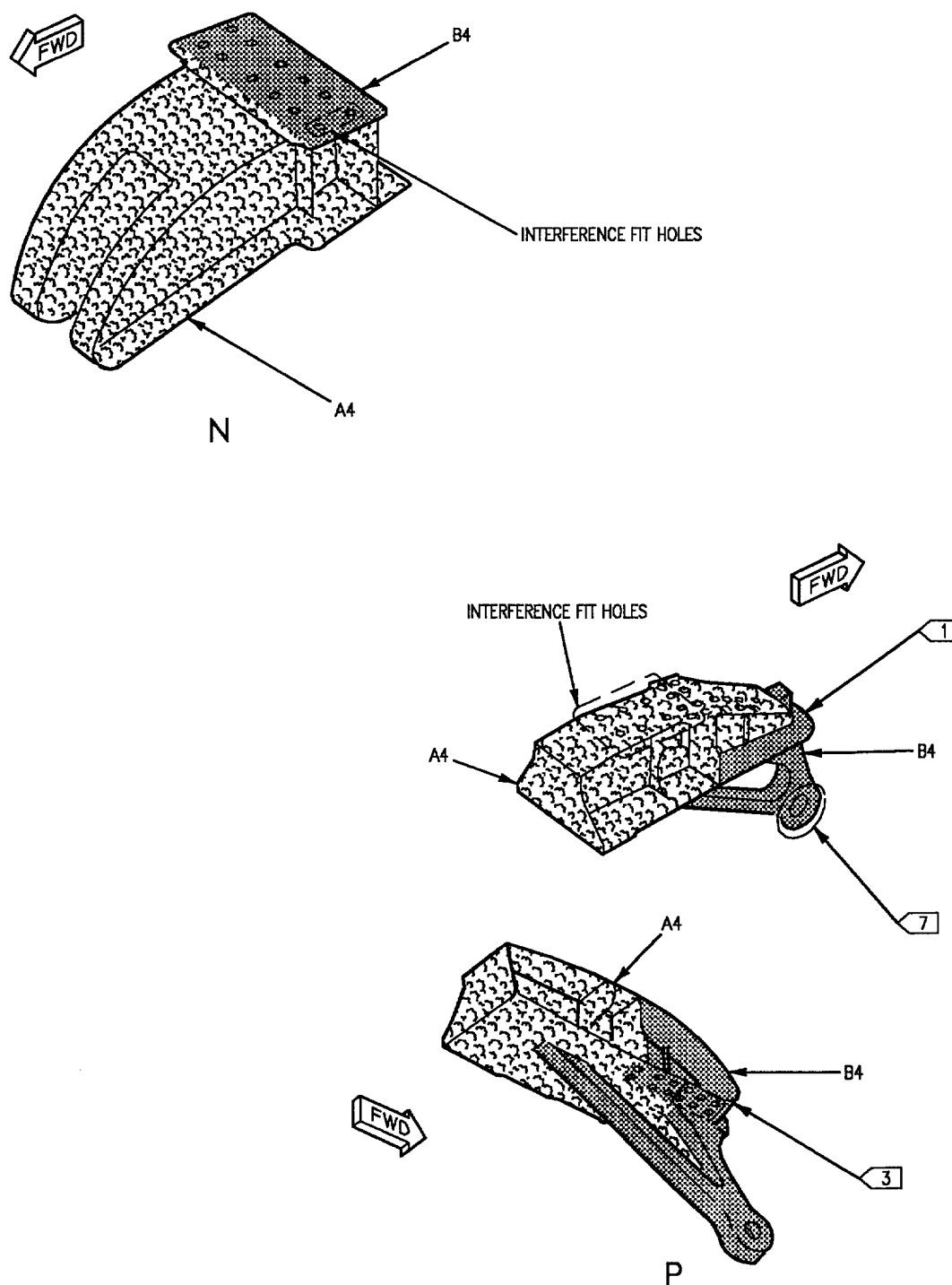


Figure 2. Repair Zones (Sheet 6)

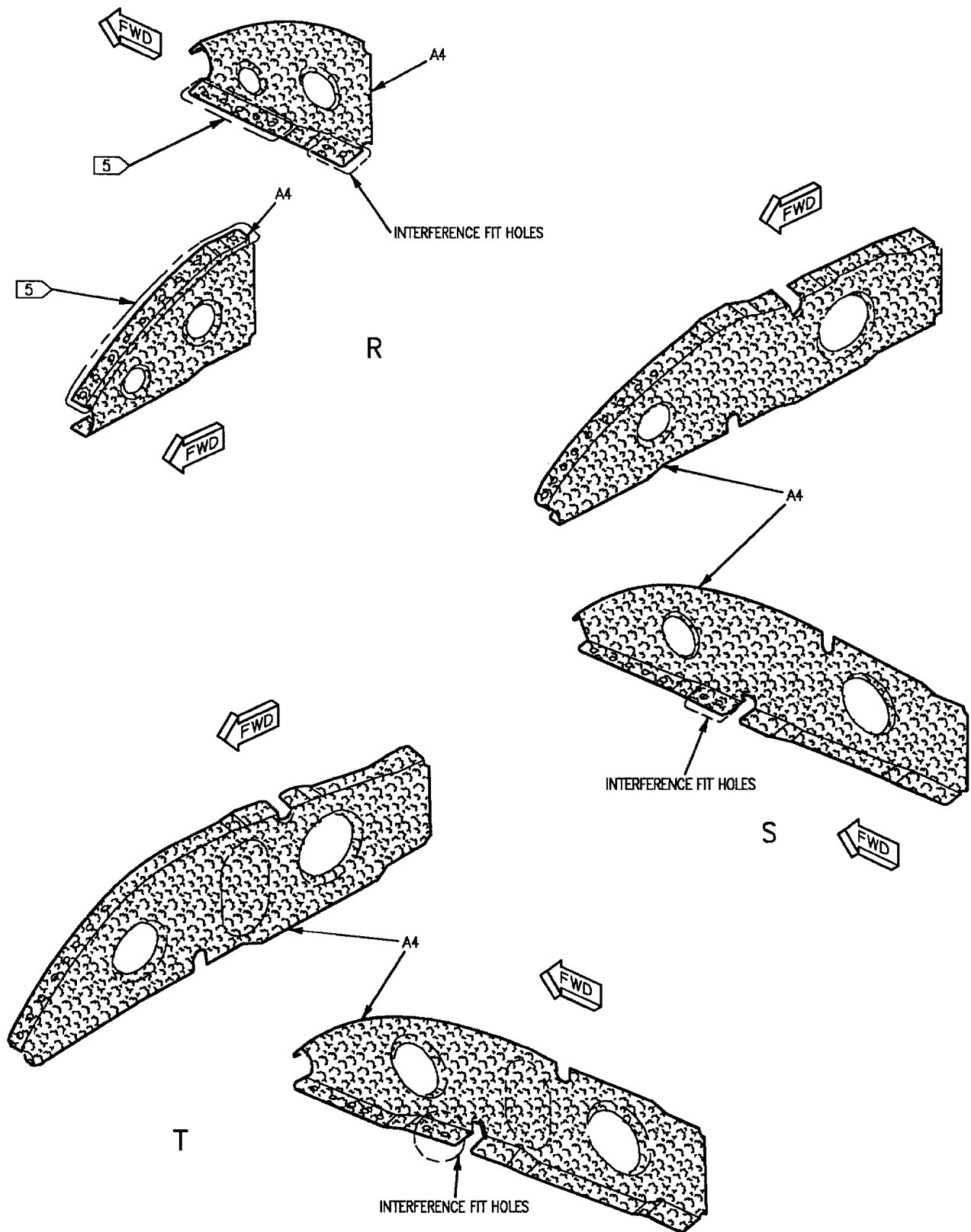


Figure 2. Repair Zones (Sheet 7)

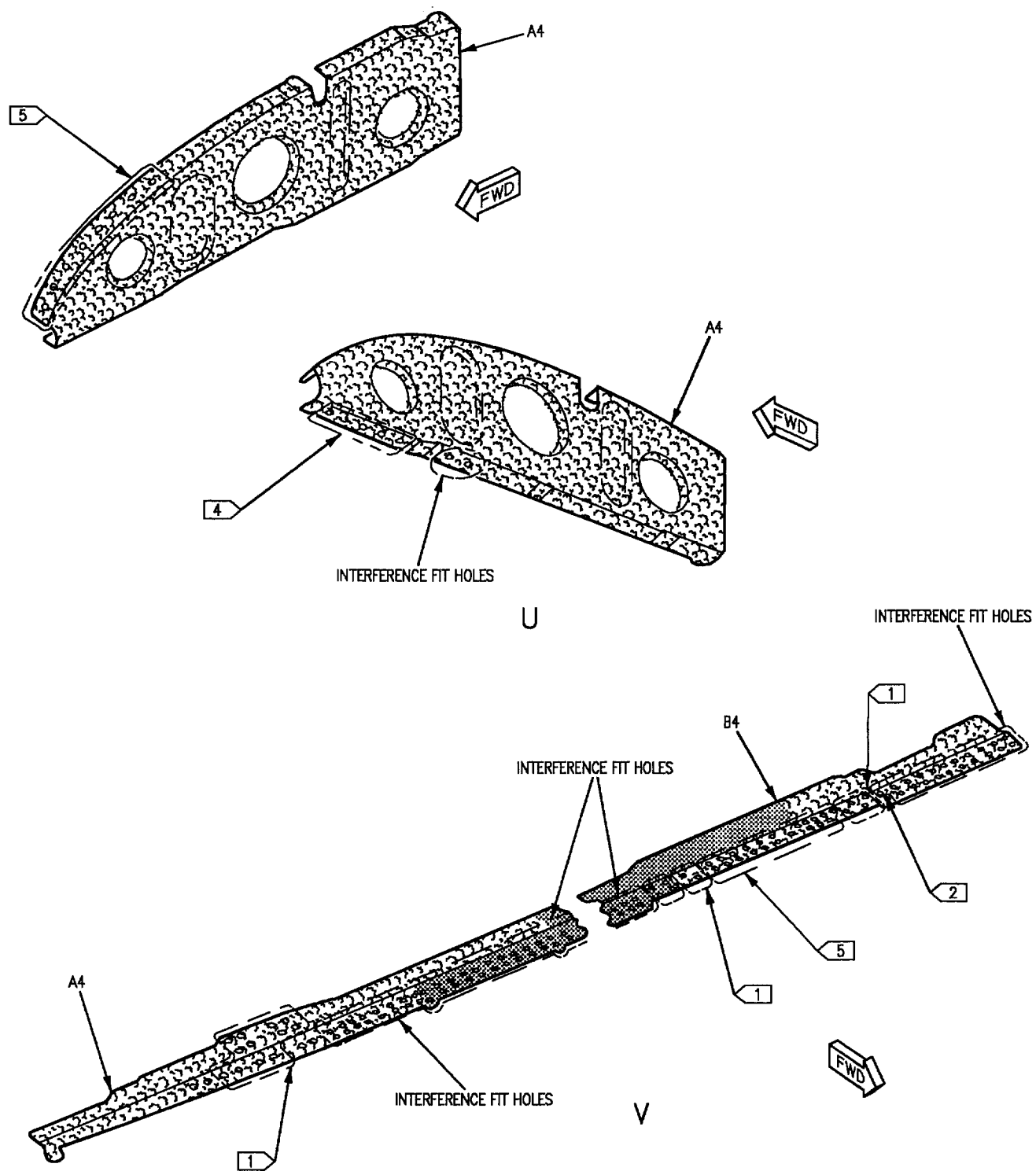


Figure 2. Repair Zones (Sheet 8)

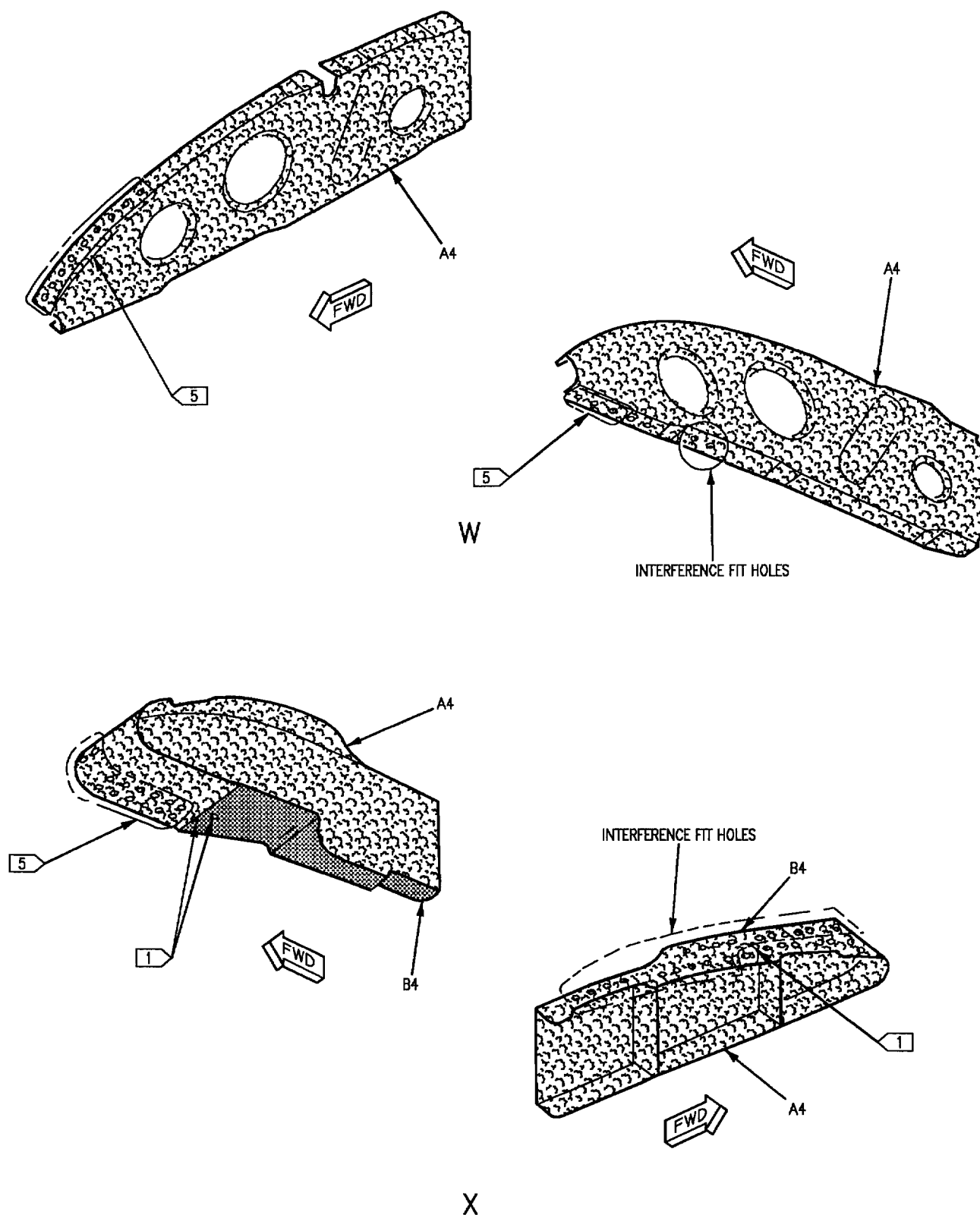


Figure 2. Repair Zones (Sheet 9)

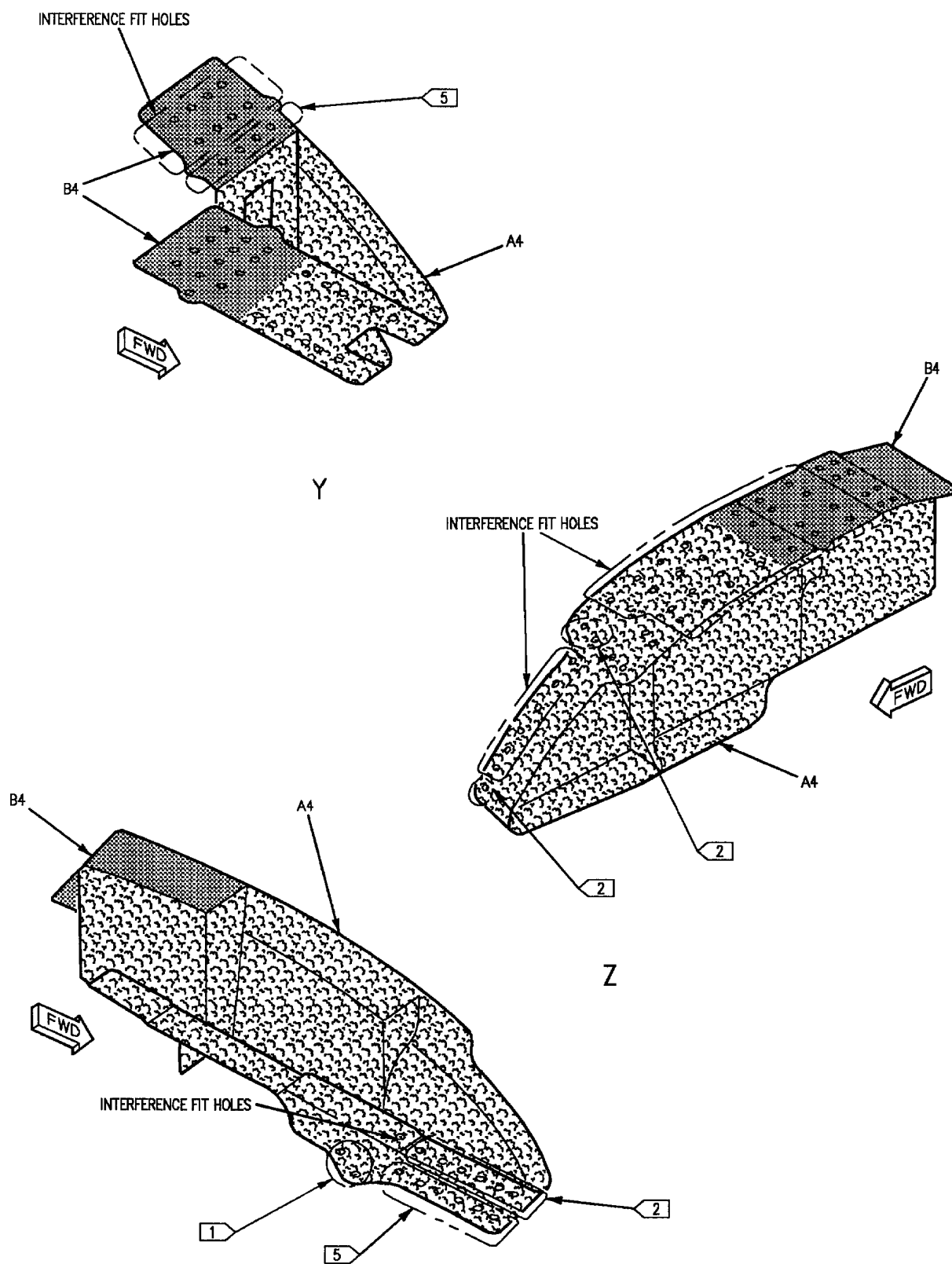


Figure 2. Repair Zones (Sheet 10)



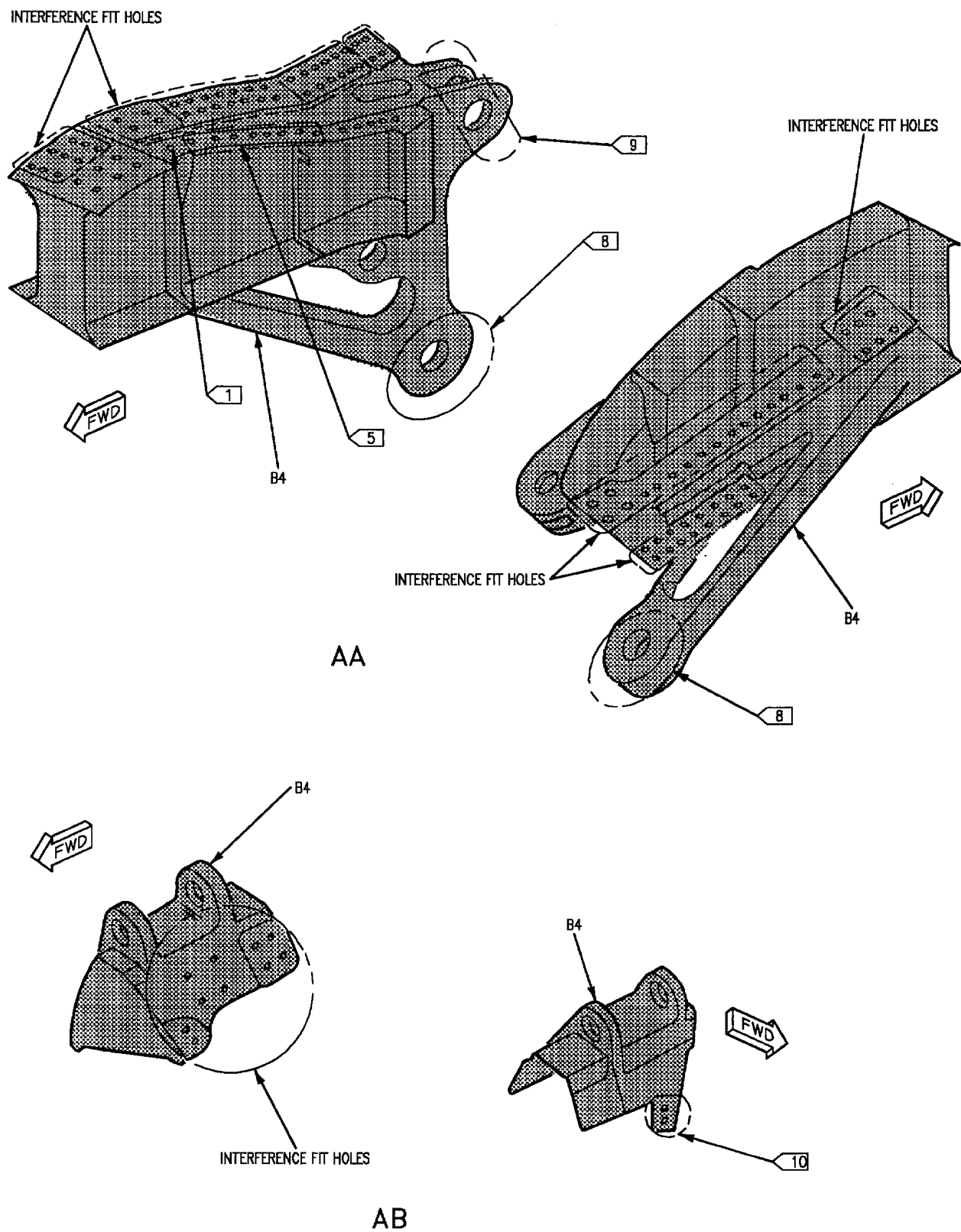


Figure 2. Repair Zones (Sheet 11)

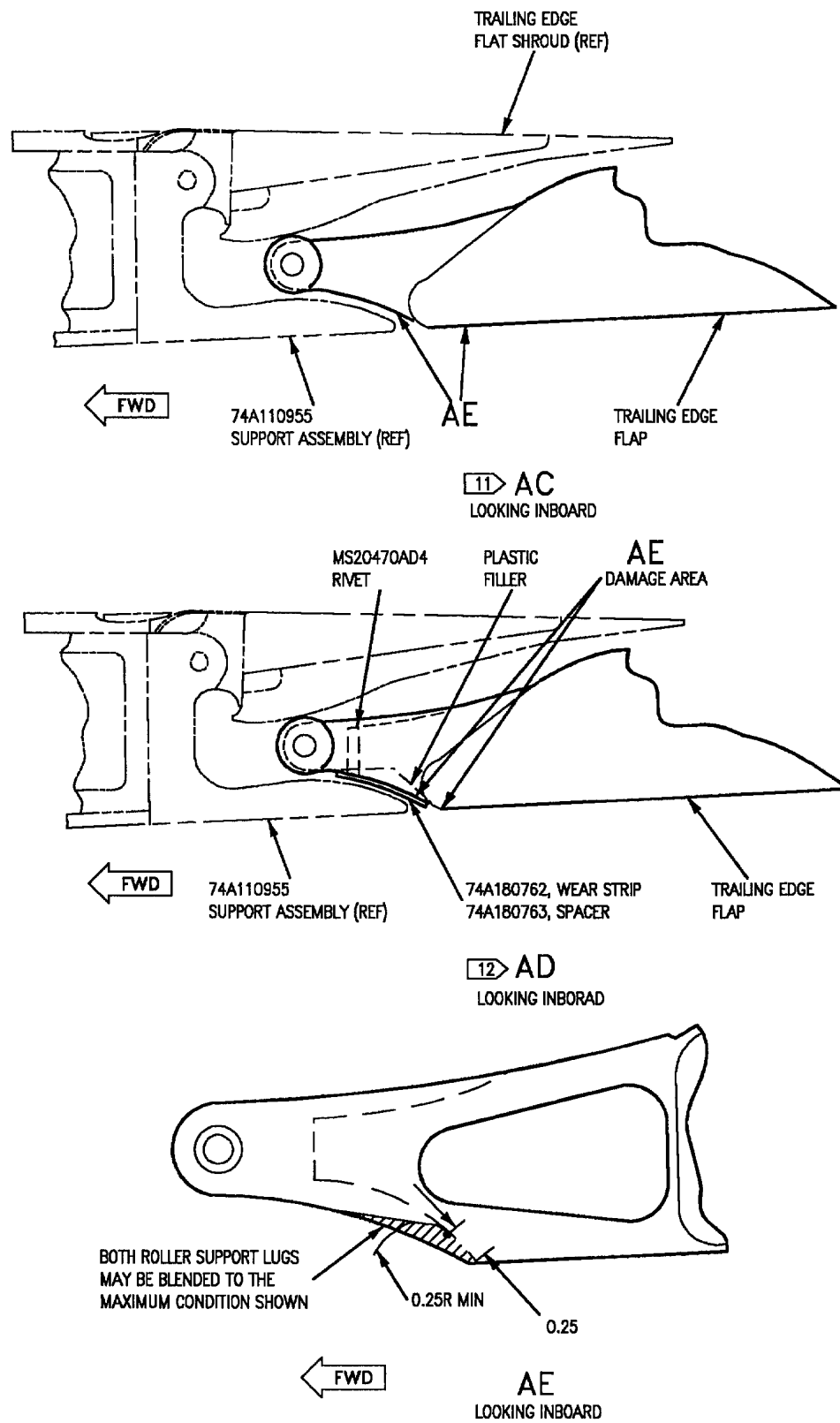
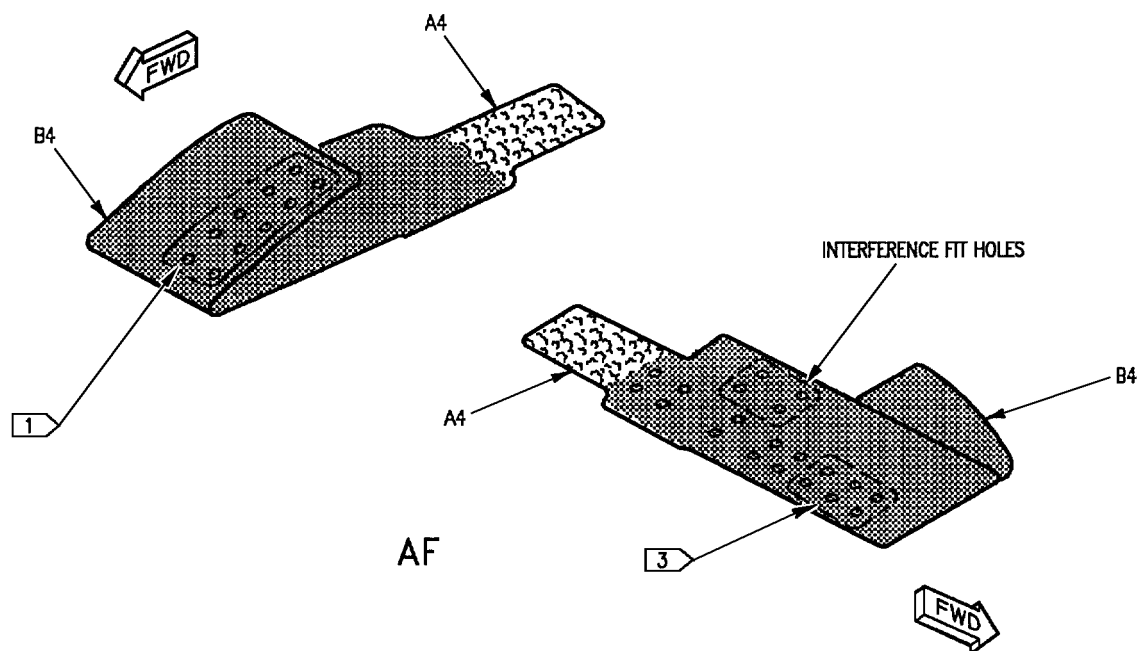


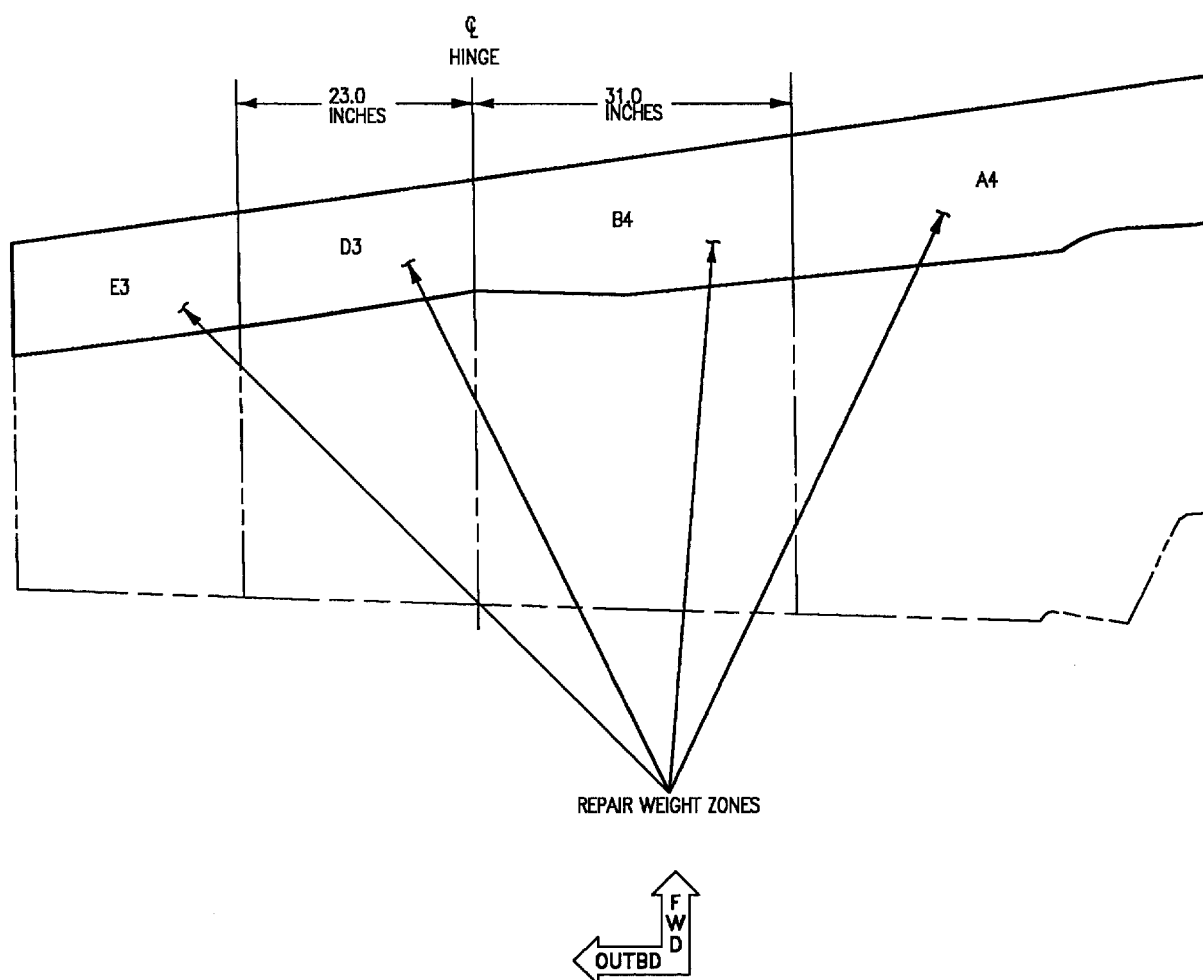
Figure 2. Repair Zones (Sheet 12)



## LEGEND

INDEX	TYPE OF COLD WORKED HOLES	HOLE SIZE	EFFECTIVITY
1	I	0.1990+0.0030-0.0000	161715 AND UP.
2	I	0.2005+0.0025-0.0000	
3	I	0.1895+0.0025-0.0000	
4	I	0.1600+0.0025-0.0000	
5	I	0.1645+0.0030-0.0000	
6	I	0.1245+0.0030-0.0000	
7	II	1.0000+0.0025-0.0000	
8	II	1.5625+0.0005-0.0000	
9	II	1.1875+0.0005-0.0000	
10	I	0.1645+0.0030-0.0000	
11	161353 THRU 161987, 162474.		
12	162394 THRU 162473 AND UP.		

Figure 2. Repair Zones (Sheet 13)



ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT(LB)
A4	4
B4	4
D3	2
E3	2

Figure 3. Repair Weight Zones

13. REPLACEMENTS.

14. BUMPER, 74A180648, TRAILING EDGE FLAP ROLLER SUPPORT. See figure 4. When wear damage appears on roller supports 74A180686 and 74A180687, remove and replace bumpers and blend out wear damage on roller supports. Replacement of bumper is intermediate level maintenance. Make item, view D, is preferred replacement for production bumper.

Support Equipment Required

None

Materials Required

Nomenclature	Specification or Part Number
Blind Fastener	NAS1670-08L5
Plastic Sheet (for Replacement Bumper)	Delrin 100AF

NOTE

Narrow space between roller support ribs requires use of thin headed installation tool. If space limitation prevents replacement of both bumpers, replace bumper on side with most wear damage to roller support.

a. Remove doors 90 and 148 (A1-F18AC-LMM-010).

b. Inspect roller supports for wear damage per Damage Evaluation, this work package.

c. Remove bumper by drilling out rivets, views A and B.

d. Blend out wear damage on roller supports. Damage no more than 0.06 is allowed. Damage more than 0.06 requires engineering disposition.

e. After blending out wear damage, do Chemical Treatment (A1-F18AC-SRM-500, WP008 00).

f. Fabricate replacement bumper, view D. Finish surface to RHR 250 or better.

g. Install bumper with blind fasteners, view C. Existing holes in roller supports shall be enlarged to fit new fasteners, view D. Install fasteners wet with sealant (A1-F18AC-SRM-200, WP011 00).

h. Install doors 90 and 148 (A1-F18AC-LMM-010).

15. BEARINGS. For replacement procedures of bearings in trailing edge flap, in ribs 74A180684 and 74A180685 (A1-F18AC-SRM-200, WP004 38). For parts information (A1-F18AC-SRM-410, FIG 011 00).

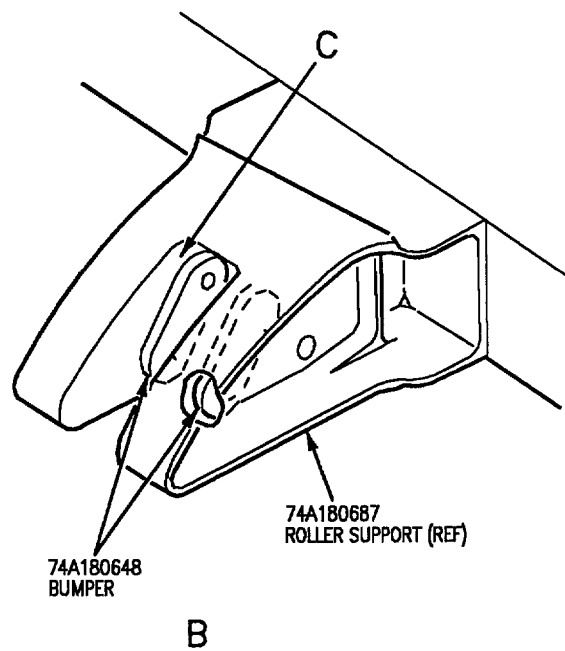
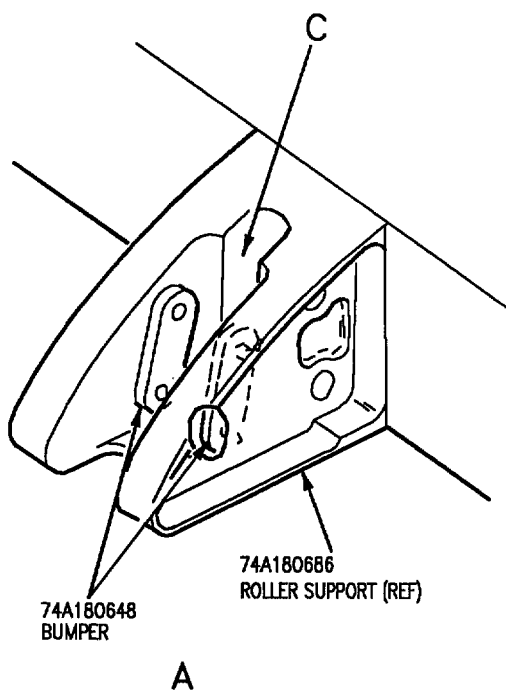
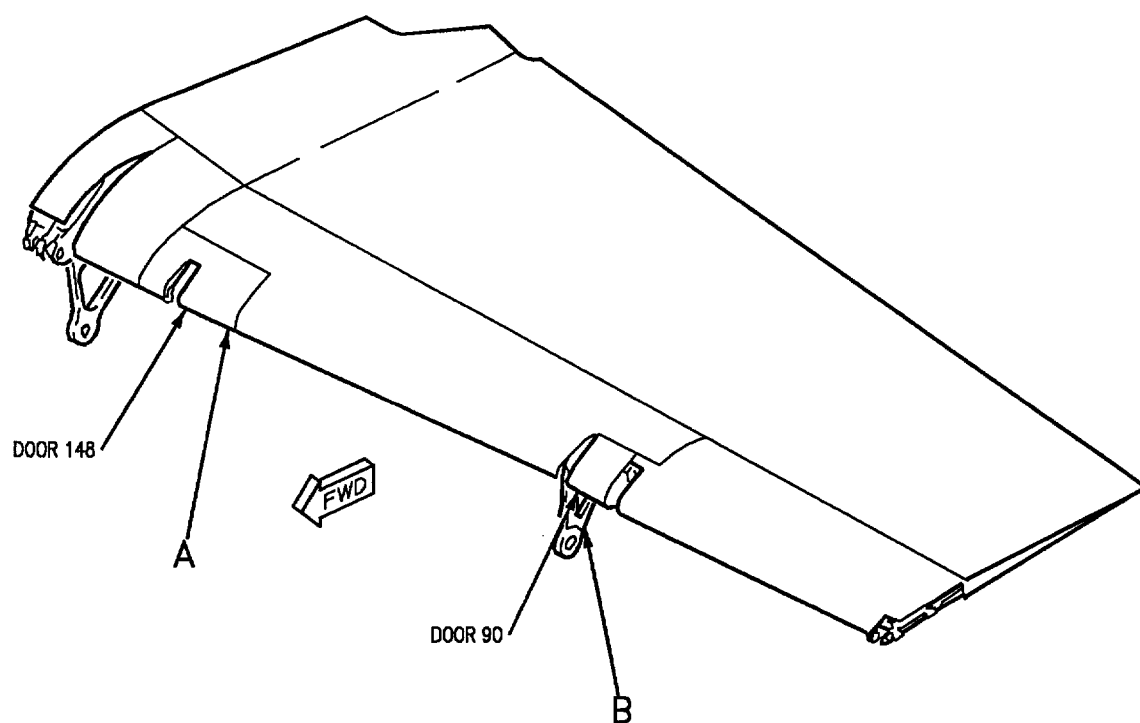


Figure 4. Bumper, 74A180648, Replacement (Sheet 1)

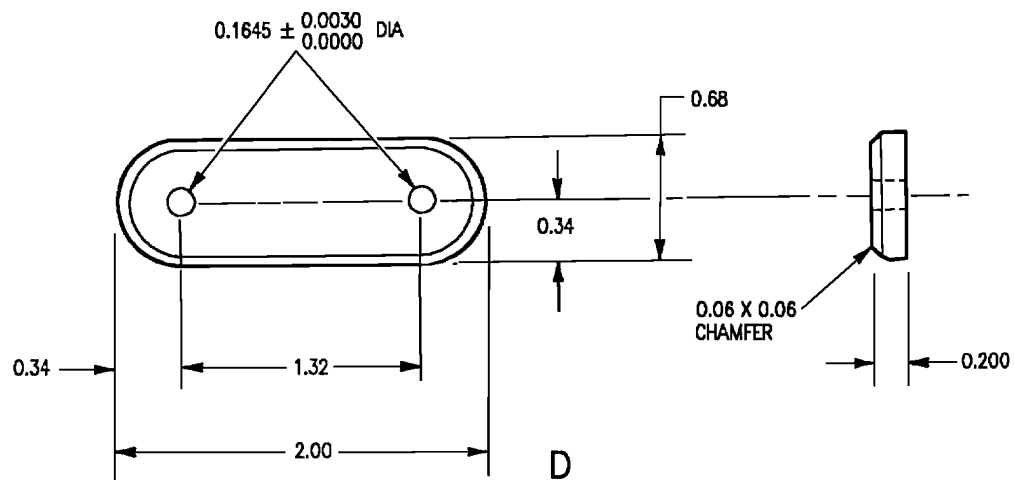
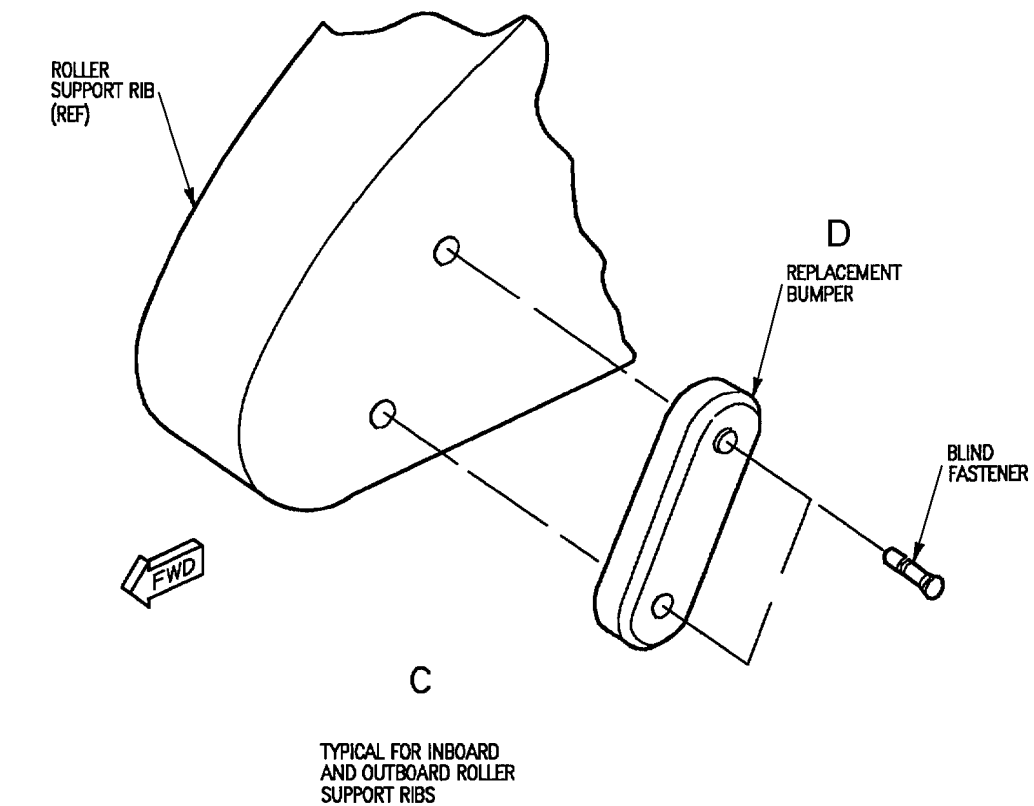


Figure 4. Bumper, 74A180648, Replacement (Sheet 2)





## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## TRAILING EDGE FLAP

## FREE PLAY INSPECTION AND WEAR TOLERANCES

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Aft Center Fuselage Finish System and Markings .....	WP033 00
Integrated Flight Controls .....	A1-F18AC-570-300
Rig Mode and Memory Inspect, Effectivity: 161520 AND UP; ALSO	
161363 THRU 161519 AFTER F18 AFC 27 .....	WP011 01
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Line Maintenance Procedures .....	A1-F18AC-LMM-000
Plane Captain Manual .....	A1-F18AC-PCM-000
Structure Repair General Information .....	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00

## Alphabetical Index

Subject	Page No.
Description .....	1
Free Play Inspection for 161353 THRU 161519 .....	2
Free Play Inspection for 161520 AND UP .....	3
Wear Tolerances .....	4

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. Wear limits established for the flap allow a maximum free play of 0.330 inch. The paragraphs below contain procedures for free play inspection, wear tolerances, support equipment and materials required.

3. FREE PLAY INSPECTION FOR 161353 THRU 161519. See figure 1. Do steps below:

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Arm Assembly	Fabricate
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
Dial Indicator Kit (0.001 Inch Graduations, Minimum	196 (Starrett or Equivalent)
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate
Spring Resiliency Tester	DPPH150
Tripod Jack, 20 Ton (T20-3FH)	782D1100

### Materials Required

Nomenclature	Specification or Part Number
Aircraft Marking Pencil, Black	MIL-P-83953, Type 1, Class A
Cheesecloth	CCC-C-440, Type 1, Class 1
Isopropyl Alcohol	TT-I-735, Grade 1
Tape, Double-Coated	AA-A-180A, Type 2, Grade B

- a. Make sure flap control surface lock is not installed (A1-F18AC-PCM-000).
- b. Make sure horizontal stabilator position support is not installed (A1-F18AC-PCM-000).
- c. Make sure doors 83L, 83R, 84L, 84R and radome are closed (A1-F18AC-LMM-010).
- d. On Digital Display Indicator ID-2150/ASM-612 in nose wheelwell, observe WPN SYS FAIL indicator.
- e. Apply electrical power (A1-F18AC-LMM-000).
- f. On GND PWR control panel assembly, set 1 switch to A ON and 2 switch to B ON.

g. Set left and right Digital Display Indicator (DDI) IP-1317/A power switch to DAY or NIGHT. Allow 2 minute warmup. Adjust BRT and CONT controls for best display.

h. Press right DDI MENU pushbutton switch.

i. Press right DDI BIT pushbutton switch.

j. On LH vertical console control panel, set FLAP switch to AUTO.

k. On FCS Control Panel C-10406/ASW-44, set the GAIN switch to NORM.

l. On MAP GAIN control panel assembly, set SPIN switch to NORM.

m. On GND PWR control panel assembly, set 4 switch to B ON.

n. Wait 20 seconds for BIT to initialize.

o. Simultaneously press the below switches:

(1) On FCS Control Panel C-10406/ASW-44, press RESET switch.

(2) On Control Stick Sensor DT-601/ASW-44, press the autopilot/nosewheel steering disengage switch (paddle switch).

### WARNING

Control surfaces move during initiated BIT with hydraulic power applied. To prevent personnel injury or equipment damage, be sure personnel and equipment are kept clear of control surfaces.

p. Apply hydraulic power to system 1 and 2 (A1-F18AC-LMM-000).

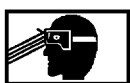
q. On FCS Control Panel C-10406/ASW-44, press RESET switch.

r. On FCS Control Panel C-10406/ASW-44, press T/O TRIM PUSH switch.

s. Fabricate aluminum arm assembly. See detail G through M.



Isopropyl Alcohol



2



To avoid contamination of alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into alcohol.

t. Clean back side of dial indicator mount and area of center fuselage where dial indicator is to be mounted with a clean cloth saturated with isopropyl alcohol. Wipe area clean with a clean, dry cloth before isopropyl alcohol dries.

u. Position dial indicator assembly on center fuselage and mark area for position with pencil.

v. Apply tape to dial indicator mount.

w. Attach dial indicator mount to center fuselage.

x. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.

y. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of trailing edge flap. Adjust dial indicator to 0.



To prevent damage to aircraft make sure that there is enough clearance between jack and flap before moving jack under flap, and do not raise jack higher than required to locate the arm in horizontal position.

z. Position jack and arm under flap, raise jack until rubber pad on arm contacts flap and arm is horizontal. Mark location of rubber pad with pencil. Seat jack by placing blocks under jack foot pads.

aa. Thread spring resiliency tester into aluminum plate. Place aluminum plate on upper surface of trailing edge flap at correct location and apply a 50 pound down load.

ab. Readjust dial indicator to 0 with load applied.

ac. Attach spring resiliency tester to arm and pull down with a 35 pound load.

ad. Record total deflection from dial indicator with 35 pound load applied.

ae. Total deflection should not exceed 0.330 inch. A total deflection that exceeds 0.330 inch requires a depot engineering disposition.

af. Remove dial indicator assembly from dial indicator mount.

ag. Remove dial indicator mount from aircraft.

ah. Lower jack and arm, remove arm and blocks and move jack out from under aircraft.

ai. Remove electrical and hydraulic power (A1-F18AC-LMM-000).

aj. Remove tape from dial indicator mount or center fuselage.

ak. Remove aluminum plate from spring resiliency tester.

al. Refinish surface (A1-F18AC-SRM-500, WP027 00 and WP033 00).

4. FREE PLAY INSPECTION FOR 161520 AND UP. See figure 1. Do steps below:

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Arm Assembly	Fabricate
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
Dial Indicator Kit (0.001 Inch Graduations, Minimum	196 (Starrett or Equivalent)
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate
Spring Resiliency Tester	DPPH150
Tripod Jack, 20 Ton (T20-3FH)	782D1100

## Materials Required

Nomenclature	Specification or Part Number
Aircraft Marking Pencil, Black	MIL-P-83953, Type 1, Class A
Cheesecloth	CCC-C-440, Type 1, Class 1
Isopropyl Alcohol	TT-I-735, Grade 1
Tape, Double-Coated	AA-A-180A, Type 2, Grade B

a. Do rig mode setup (A1-F18AC-570-300, WP011 01).

b. On LH vertical console control panel, set FLAP switch to HALF.

c. Fabricate aluminum arm assembly. See detail G through M.



Isopropyl Alcohol



2



To avoid contamination of alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into alcohol.

d. Clean backside of dial indicator mount and area of center fuselage where dial indicator is to be mounted with a clean cloth saturated with isopropyl alcohol. Wipe area clean with a clean, dry cloth before isopropyl alcohol dries.

e. Position dial indicator assembly on center fuselage and mark area for position with pencil.

f. Apply tape to dial indicator mount.

g. Attach dial indicator mount to center fuselage.

h. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.

i. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of trailing edge flap. Adjust dial indicator to 0.



To prevent damage to aircraft, make sure that there is enough clearance between jack and flap before moving jack under flap, and do not raise jack higher than required to locate the arm in horizontal position.

j. Position jack and arm under flap, raise jack until rubber pad on arm contacts flap and arm is horizontal. Mark location of rubber pad with pencil. Seat jack by placing blocks under jack foot pads.

k. Thread spring resiliency tester into aluminum plate. Place aluminum plate on upper surface of trailing edge flap at correct location and apply a 50 pound down load.

l. Readjust dial indicator to 0 with load applied.

m. Attach spring resiliency tester to arm and pull down with a 35 pound load.

n. Record total deflection from dial indicator with 35 pound load applied.

o. Total deflection should not exceed 0.330 inch. A total deflection that exceeds 0.330 inch requires a depot engineering disposition.

p. Remove dial indicator assembly from dial indicator mount.

q. Remove dial indicator mount from aircraft.

r. Lower jack and arm, remove arm and blocks and move jack out from under aircraft.

s. Set flap switch to AUTO.

t. Do rig mode shutdown (A1-F18AC-570-300, WP011 01).

u. Remove tape from dial indicator mount or center fuselage.

v. Remove aluminum plate from spring resiliency tester.

w. Refinish surface (A1-F18AC-SRM-500, WP027 00 and WP033 00).

5. **WEAR TOLERANCES.** See figure 2. Clearances that exceed those in figure 2 require depot engineering disposition unless other specific information is given.

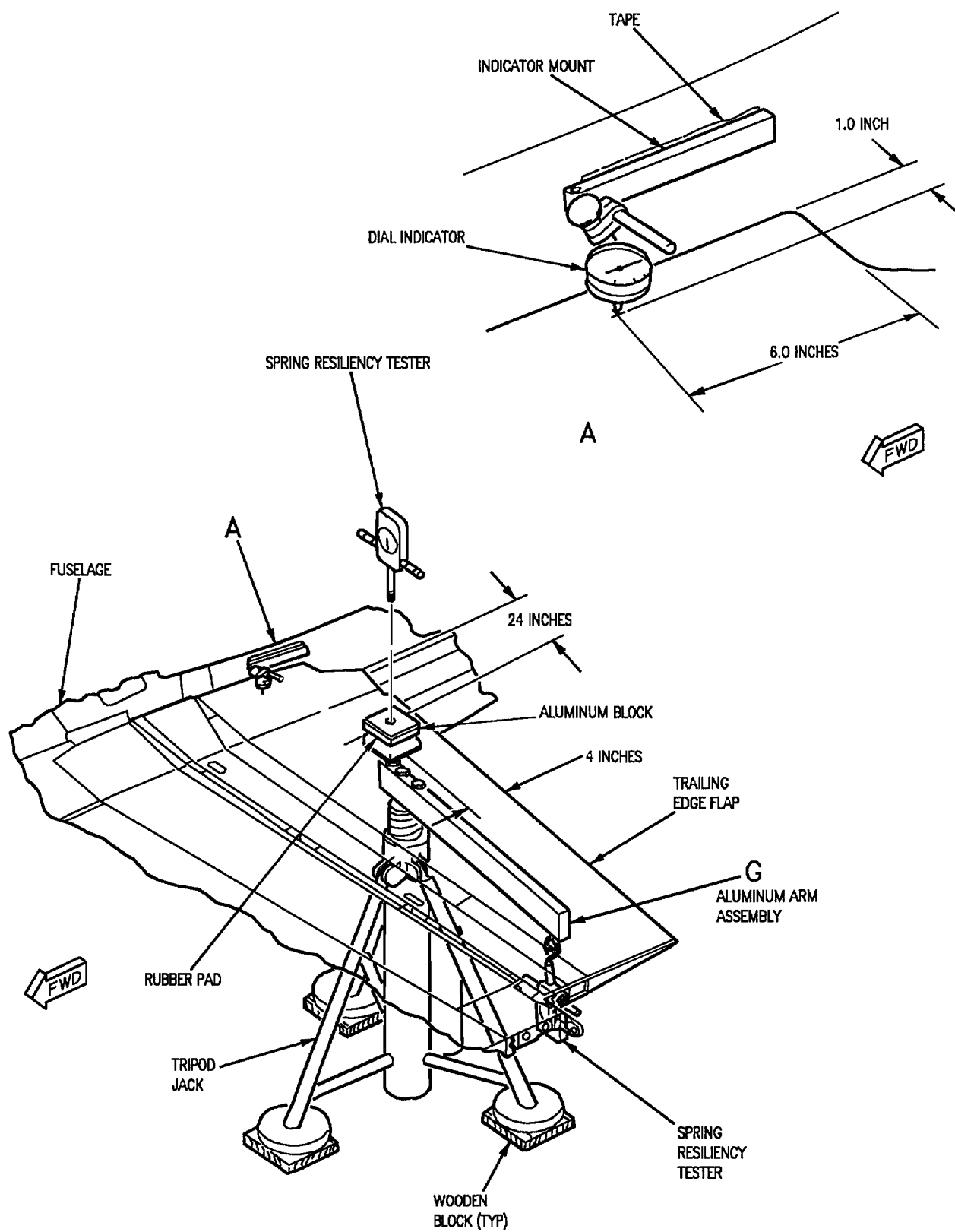
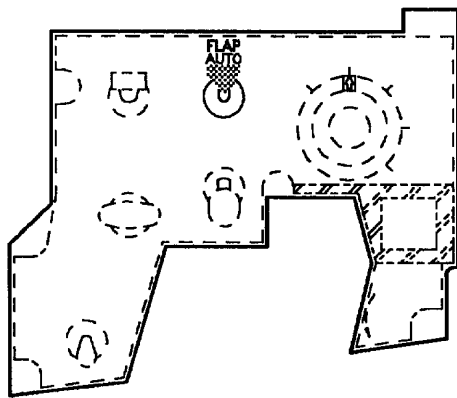
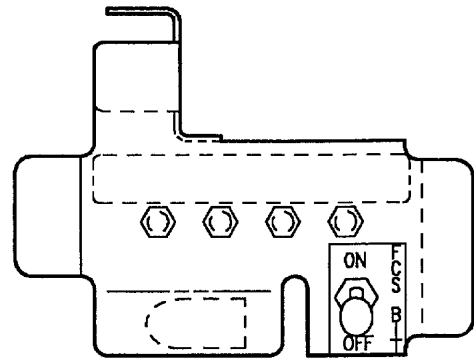


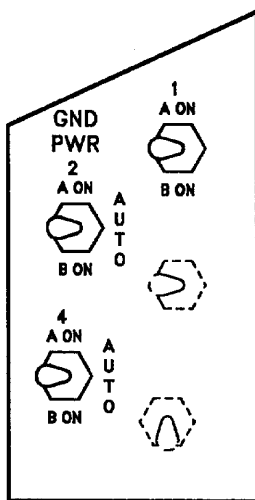
Figure 1. Free Play Inspection (Sheet 1)



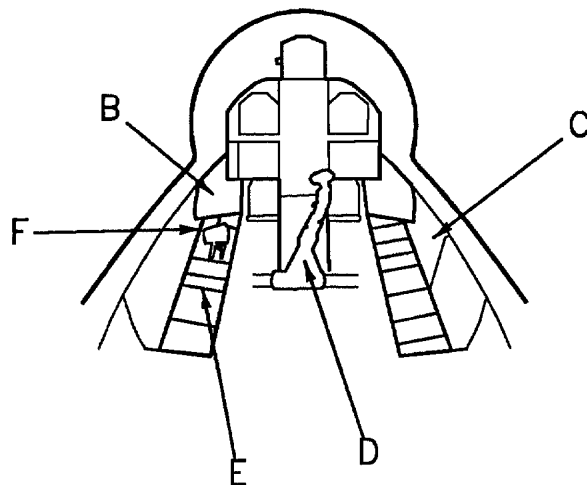
B



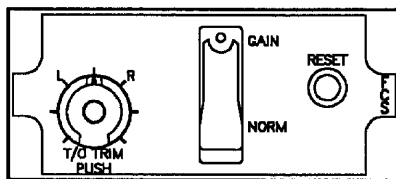
C



F



E



AUTOPILOT/NOSEWHEEL  
STEERING DISENGAGE  
SWITCH(PADDLE SWITCH)

D

Figure 1. Free Play Inspection (Sheet 2)

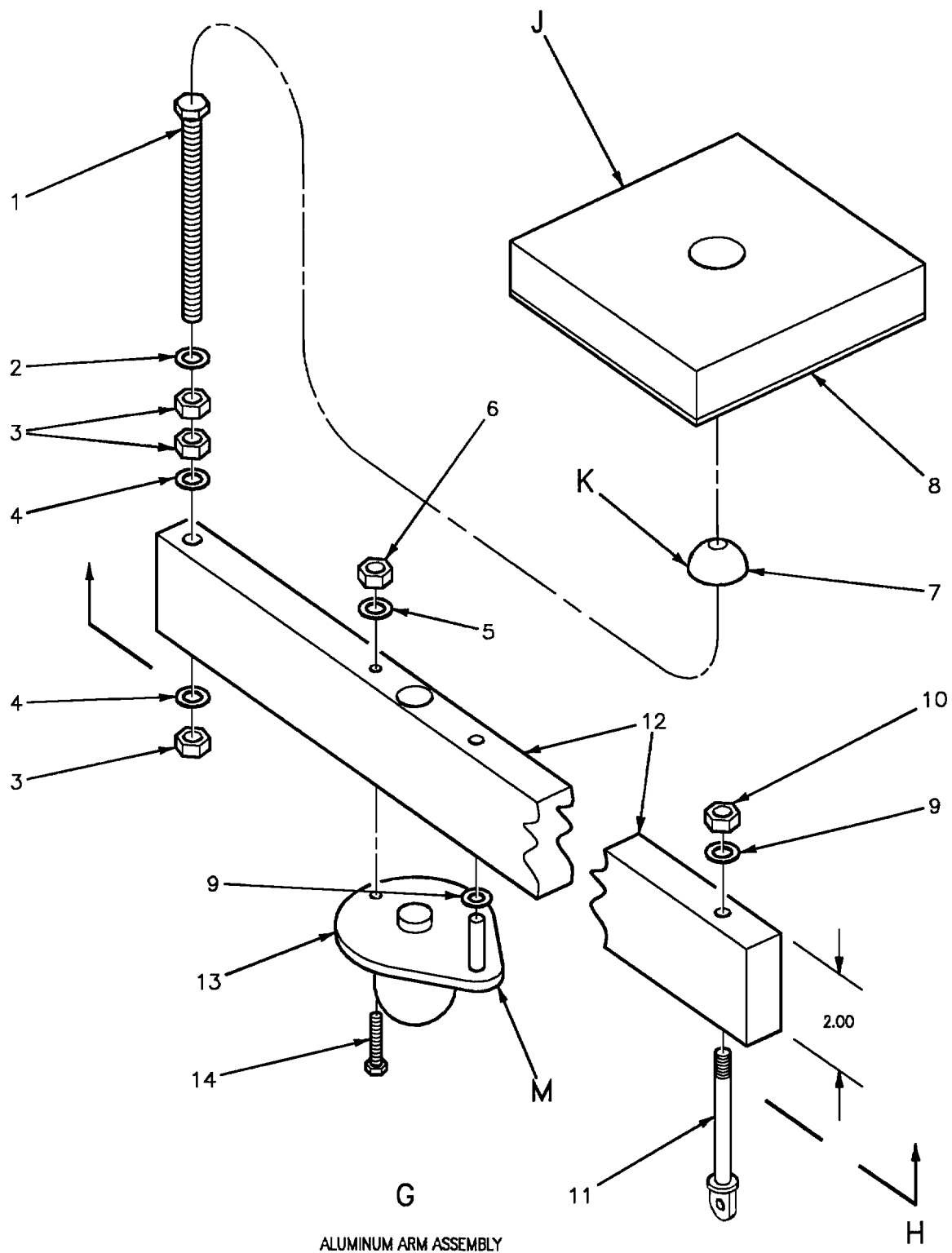


Figure 1. Free Play Inspection (Sheet 3)

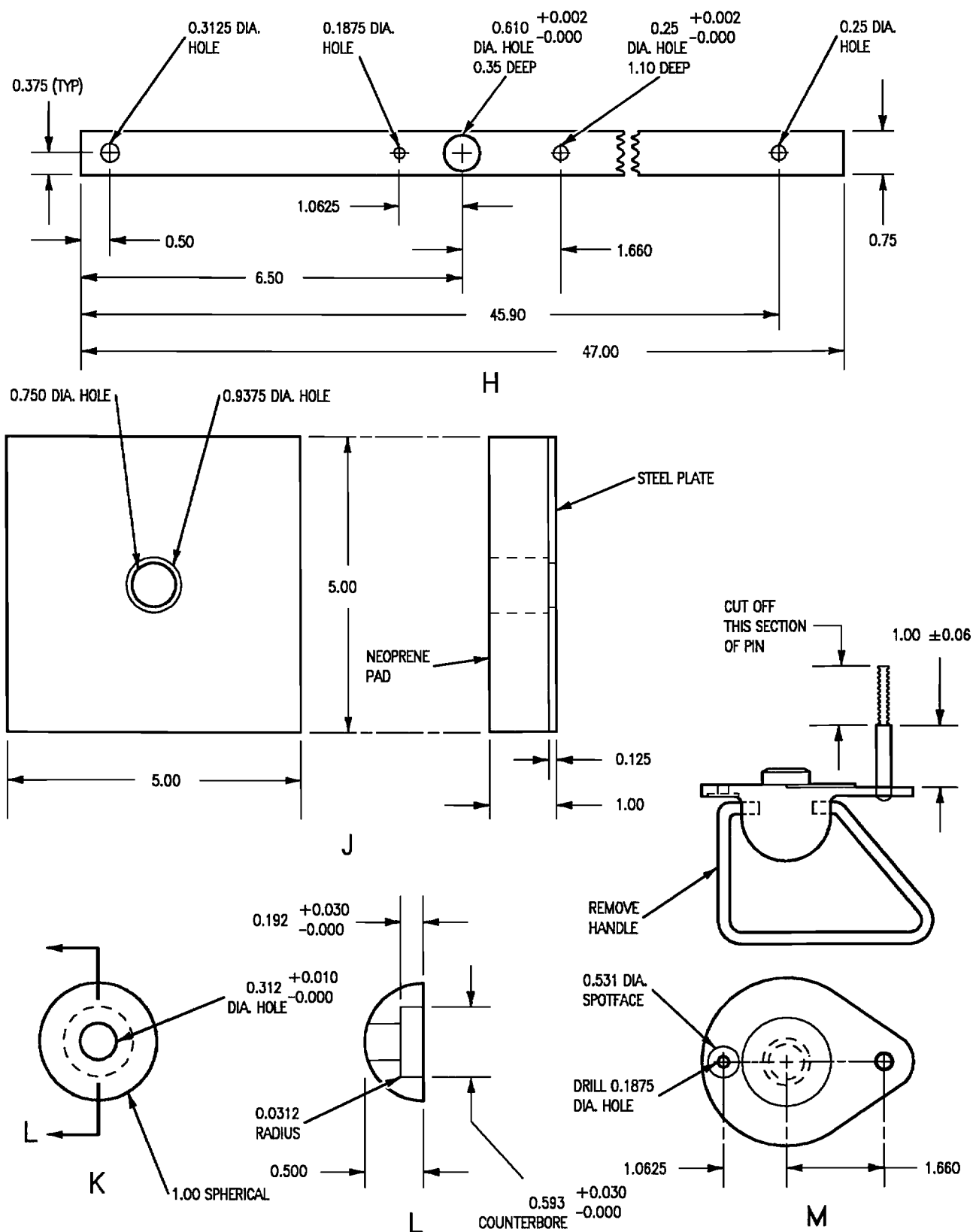






Figure 1. Free Play Inspection (Sheet 4)



INDEX NO.	PART NAME	SPECIFICATION OR PART NO.
1	BOLT, HEX HEAD	NAS428-5-42
2	WASHER, FLAT	AN970-5
3	NUT	AN315-5
4	WASHER, FLAT	AN960JD516
5	WASHER, FLAT	AN960JD10
6	NUT	NAS1291-C3M
7	SWIVEL BALL	
8	TENSION PAD	
9	WASHER, FLAT	AN960JD416
10	NUT	NAS1291-C4M
11	EYE BOLT	AN43B-25A
12	ARM	
13	JACK PAD	 53E010004-1
14	BOLT, HEX HEAD	NAS1801-3-16





LEGEND	
	FABRICATE FROM MMS-202 STEEL ROD.
	FABRICATE NEOPRENE PAD FROM MIL-R-6130, TYPE 2, GRADE A, CONDITION FIRM; FABRICATE STEEL PLATE FROM QQ-S-633, COMP. 1018, COND. NORMALIZED; BOND NEOPRENE PAD TO STEEL PLATE USING MIL-S-83430; FOR SEALANT PREPARATION AND APPLICATION (A1-F18AC-SRM-200, WP011 00).
	FABRICATE FROM 6061-T6511, QQ-A-200/8 ALUMINUM ALLOY, 47.00 X 0.75 X 2.00 BAR STOCK.
	NSN 1730-00-963-5987, F-4 WING/FUSELAGE JACK PAD.

Figure 1. Free Play Inspection (Sheet 5)

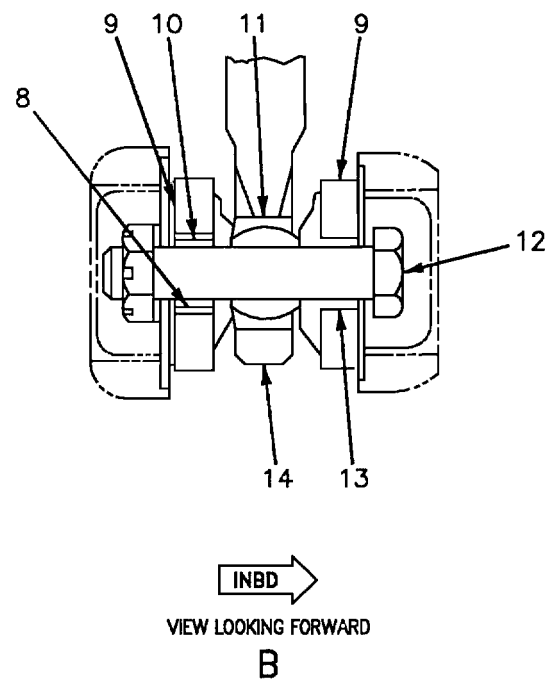
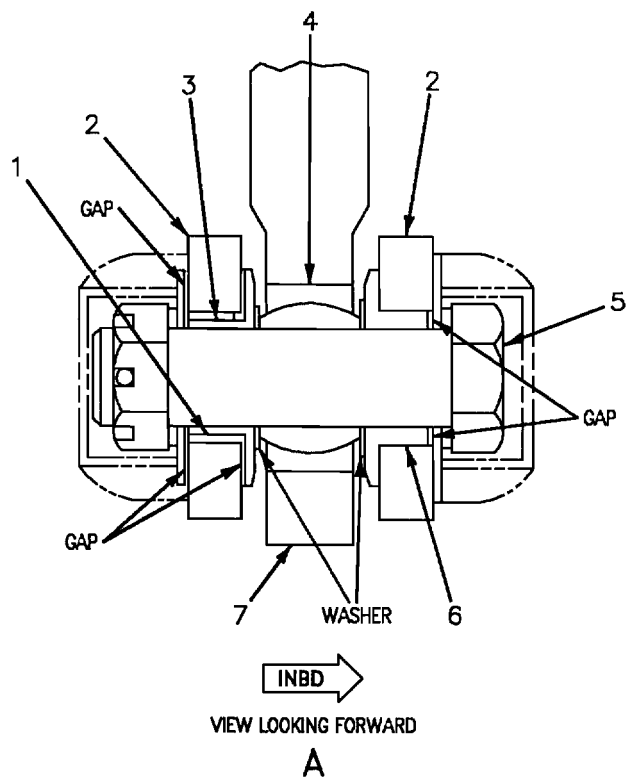
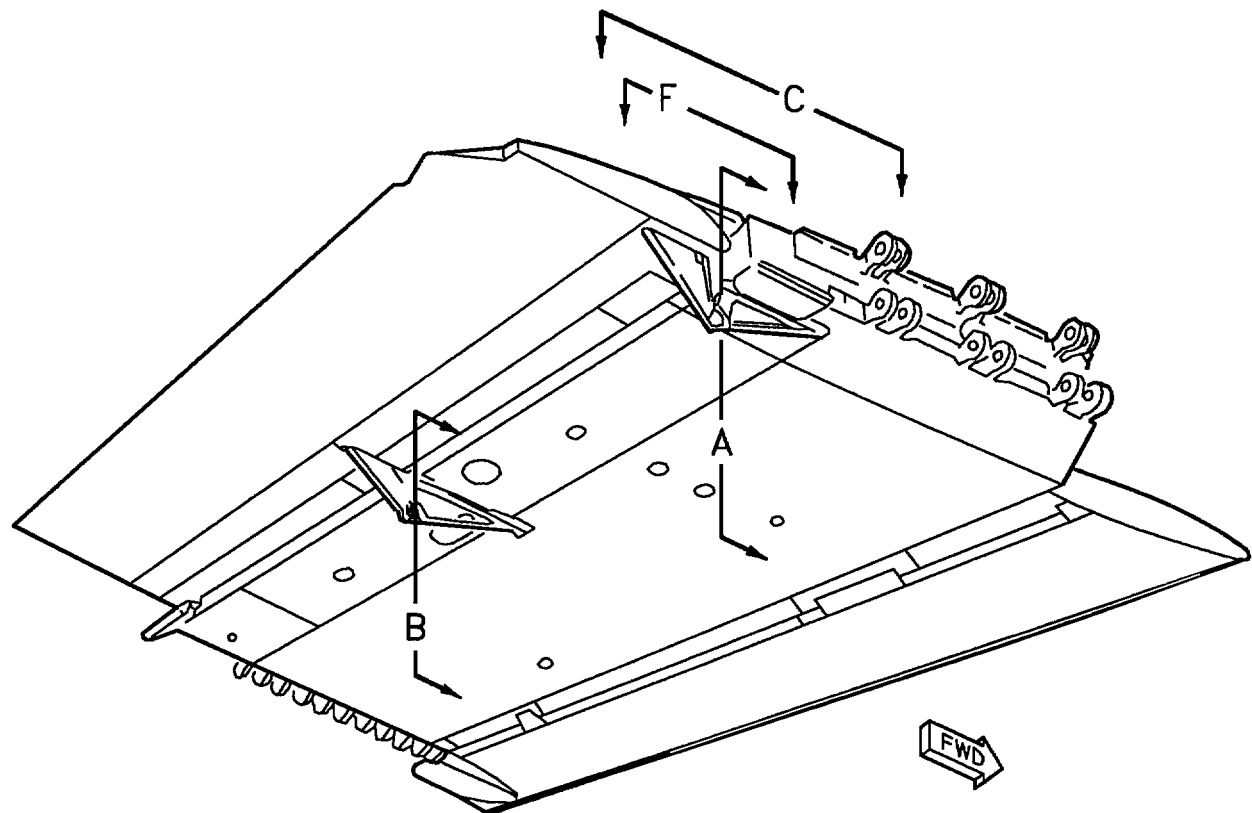


Figure 2. Wear Tolerances (Sheet 1)

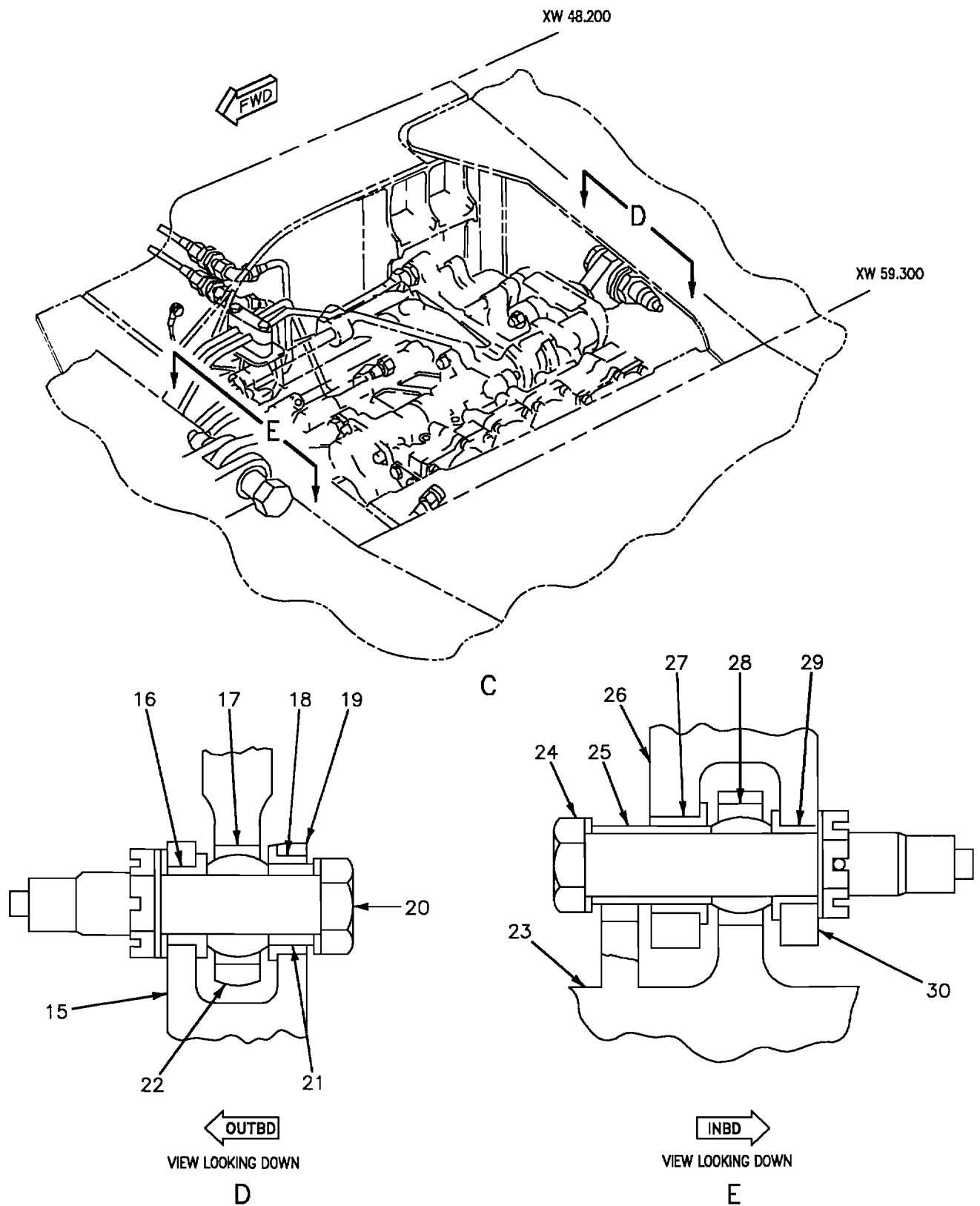


Figure 2. Wear Tolerances (Sheet 2)

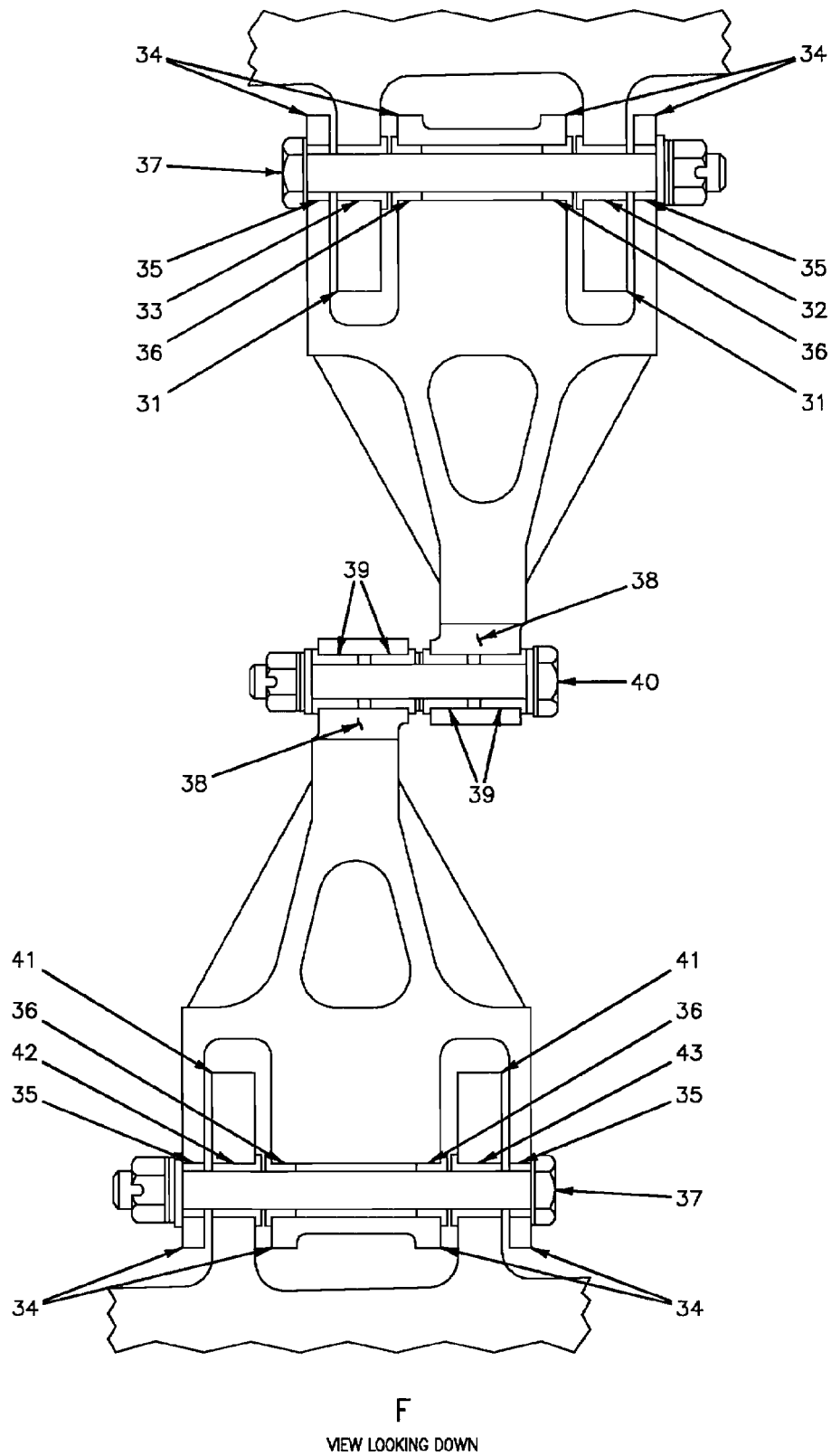


Figure 2. Wear Tolerances (Sheet 3)












DET	IDX NO	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE 
A	1	4M43C16-015	BUSHING	0.9995+0.0005-0.0000 ID 1.1908+0.0000-0.0010 OD	0.9995+0.0050-0.0000 NA
	2	74A110959	HINGE HALF	1.1875+0.0010-0.0005	NA
	3	74A110950-2011	BUSHING	0.8750+0.0015-0.0000 ID 0.9990+0.0000-0.0010 OD	0.8750+0.0060-0.0000 0.9990+0.0000-0.0050
	4	MS14101-14	BEARING	0.8750+0.0000-0.0005 ID 1.5625+0.0000-0.0005 OD	0.8750+0.0030-0.0005 NA
	5	3M892-14D38	BOLT	0.8740+0.0000-0.0005	0.8740+0.0000-0.0015
	6	74A110950-2009	BUSHING	0.8750+0.0015-0.0000 ID 1.1908+0.0000-0.0010 OD	0.8750+0.0050-0.0000 NA
	7	74A180684	HINGE HALF	1.5625+0.0005-0.0000	NA
B	8	4M43C10-011	BUSHING	0.6250+0.0015-0.0000 ID 0.8152+0.0000-0.0010 OD	0.6250+0.0030-0.0000 NA
	9	74A110953	HINGE HALF	0.8125+0.0005-0.0005	NA
	10	74A110950-2015	BUSHING	0.5000+0.0015-0.0000 ID 0.6240+0.0000-0.0010 OD	0.5000+0.0025-0.0000 0.6240+0.0000-0.0030
	11	MS14103-8	BEARING	0.5000+0.0000-0.0005 ID 1.0000+0.0000-0.0005 OD	0.5000+0.0015-0.0005 NA
	12	ST3M744-D832	BOLT	0.4995+0.0000-0.0005	0.4995+0.0000-0.0010
	13	74A110950-2013	BUSHING	0.5000+0.0015-0.0000 ID 0.8152+0.0000-0.0010 OD	0.5000+0.0040-0.0000 NA
	14	74A180685	HINGE HALF	1.0000+0.0005-0.0000	NA
D	15	74A180684	HINGE HALF	0.9995+0.0005-0.0000	NA
	16	ST4M192BC12-34	BUSHING	0.7495+0.0005-0.0000 ID 1.0028+0.0000-0.0015 OD	0.7495+0.0045-0.0000 NA
	17	MS14101-12	BEARING	0.7500+0.0000-0.0005 ID 1.4375+0.0000-0.0005 OD	0.7500+0.0025-0.0005 NA
	18	ST4M139BC16-34	BUSHING	1.0000+0.0000-0.0005 ID 1.1908+0.0000-0.0010 OD	1.0000+0.0050-0.0005 NA
	19	74A180684	HINGE HALF	1.1875+0.0010-0.0005	NA
	20	ST3M833V12-30	BOLT	0.7490+0.0000-0.0005	0.7490+0.0000-0.0015
	21	ST4M166-12-009	BUSHING	0.7500+0.0010-0.0000 ID 0.9990+0.0000-0.0005 OD	0.7500+0.0040-0.0000 0.9990+0.0000-0.0040
	22	287800	SERVOCYLINDER		
E	23	287800	SERVOCYLINDER		
	24	ST3M833V12-46	BOLT	0.7490+0.0000-0.0005	0.7490+0.0000-0.0015
	25	ST4M166-12-1075	BUSHING	0.7500+0.0010-0.0000 ID 0.9990+0.0000-0.0005 OD	0.7500+0.0050-0.0000 0.9990+0.0000-0.0050
	26	74A110964	HINGE HALF	1.1875+0.0010-0.0005	NA
	27	ST4M139BC16-48	BUSHING	1.0000+0.0010-0.0000 ID 1.1908+0.0000-0.0010 OD	1.0000+0.0050-0.0000 NA
	28	MS14101-12	BEARING	0.7500+0.0000-0.0005 ID 1.4375+0.0000-0.0005 OD	0.7500+0.0025-0.0005 NA

Figure 2. Wear Tolerances (Sheet 4)

DET	IDX NO	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE  
E	29	ST4M192C12-48	BUSHING	0.7500+0.0010-0.0000 ID 1.0028+0.0000-0.0015 OD	0.7500+0.0050-0.0000 NA
	30	74A110914	HINGE HALF	0.9955+0.0005-0.0000	NA
F	31	74A180746	SUPPORT	0.4375+0.0005-0.0000	NA
	32	ST4M130-05022	BUSHING	0.3125+0.0015-0.0000 ID 0.4396+0.0000-0.0005 OD	0.3125+0.0025-0.0000 NA
	33	ST4M139BC5-38	BUSHING	0.3125+0.0015-0.0000 ID 0.4396+0.0000-0.0005 OD	0.3125+0.0025-0.0000 NA
	34	74A180696  6	CONNECTING LINK	0.4379+0.0005-0.0000  3 0.4375+0.0005-0.0000  4	NA NA
	35	4M43BC5-007	BUSHING	0.3125+0.0020-0.0000 ID 0.4396+0.0000-0.0005 OD	0.3125+0.0030-0.0000 NA
	36	ST4M139BC5-20	BUSHING	0.3125+0.0020-0.0000 ID 0.4396+0.0000-0.0005 OD	0.3125+0.0030-0.0000 NA
	37	3M932-4D48	BOLT	0.3120+0.0000-0.0005	0.3120+0.0000-0.0010
	38	74A180696  6	CONNECTING LINK	0.4381+0.0005-0.0000  3 0.4377+0.0005-0.0000  4	NA NA
	39	ST4M139BC5-35	BUSHING	0.3250+0.0040-0.0000 ID 0.4396+0.0000-0.0005 OD	0.3250+0.0050-0.0000 NA
	40	ST3M494-4D31	BOLT	0.3120+0.0000-0.0005	0.3120+0.0000-0.0010
	41	74A110959	SUPPORT	0.4374+0.0020-0.0000	NA
	42	4M279-05005	BUSHING  5	0.3125+0.0015-0.0000 ID 0.4365+0.0000-0.0010 OD	0.3125+0.0025-0.0000 ID NA
	43	4M279-05004	BUSHING  5	0.3125+0.0015-0.0000 ID 0.4365+0.0000-0.0010 OD	0.3125+0.0025-0.0000 ID NA

## LEGEND







-  1 ASSEMBLY MUST PASS FREE PLAY INSPECTION INDEPENDENT OF NOTED WEAR TOLERANCE.
-  2 IF NOTED WEAR TOLERANCE IS EXCEEDED, BUT ASSEMBLY MEETS FREE PLAY REQUIREMENTS, NO REPAIRS ARE REQUIRED.
-  3 DIMENSION IS APPLICABLE BEFORE HOLE DIAMETERS ARE ANODIZED.
-  4 DIMENSION IS APPLICABLE AFTER HOLE DIAMETERS ARE ANODIZED.
-  5 BUSHINGS ARE FORCE MATE INSTALLED.
-  6 AFTER WEAR INSPECTION OF CONNECTING LINK ASSEMBLY, RIG GAP BETWEEN CONNECTING LINKS PER A1-F18AC-570-300, WPO39 00.

Figure 2. Wear Tolerances (Sheet 5)

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ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE  
STRUCTURE REPAIR  
TRAILING EDGE FLAP, LEADING EDGE COMPOSITE SKINS

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### Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Pulse Echo, Longitudinal Wave, Contact, Without Delay Line, For Composite Laminate Material .....	WP008 02
Pulse Echo, Longitudinal Wave Contact, With Delay Line, For Composite Laminate Material .....	WP008 03
Trailing Edge Flap Skin to Core Unbonds and Delaminations .....	WP014 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Curing of Repairs .....	WP004 00
Graphite Epoxy Skin, Class I Damage Repair .....	WP008 00
Graphite Epoxy Skin, Class III Damage Repair .....	WP010 00
Graphite Epoxy Skin, Class V Damage Repair .....	WP011 01
Use of Equipment History Record (EHR) Card .....	WP048 00
Structural Hardware .....	NAVAIR 01-1A-8

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Damage Evaluation .....	2
Repairs .....	3
Graphite Epoxy Skins .....	2
Damage Evaluation .....	2
Repairs .....	3
Replacement .....	8
Inboard and Outboard Drive Hinge Assembly Skin Replacement .....	8

### Record of Applicable Technical Directives

None

## 1. FIBERGLASS SKINS - HONEYCOMB CORE.

2. **DAMAGE EVALUATION.** See figure 1. The figure identifies types of materials used. The data shown can be used to analyze the damage.

3. **Negligible Damage.** The fiberglass fairings (5 and 6, figure 1) are aerodynamic surfaces only. All damage to these parts is negligible unless the skin is penetrated. If skin is penetrated, do replacement per paragraph 14.

## 4. GRAPHITE EPOXY SKINS.

5. **DAMAGE EVALUATION.** See figures 1 and 3. The types of materials used are shown on figure 1. Repair zones are shown on figure 3. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI is intermediate maintenance. Damage not listed or exceeding limits below requires a depot engineering disposition.

6. **ALLOWABLE REPAIR WEIGHTS.** See figure 3. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on flap for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restrict future repairs within this zone, proceed with repair and enter required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds need not be recorded on EHR card.

a. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone all of the repair weight should be added to that zone.

7. **Negligible Damage.** See figure 4. Negligible damage may be allowed to exist as is anywhere on

the skin. Determine size and location of delamination (A1-F18AC-SRM-300, WP008 02 or WP008 03). Type and limits are listed below:

a. Delaminations between skin plies, view A.

(1) Delaminations do not extend to edge of skin.

(2) Diameter is 1/2-inch or less.

(3) Distance between delaminations is at least four times the diameter of the largest delamination. Measure distance between delamination edge to edge.

8. **Repairable Damage.** See figure 4. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of the aircraft. No repair weights are added for Class I, III, or V repairs.

9. **Skin Surface Damage and Dents, Class I Damage.** See figure 4, section B. Class I damage is damage which does not exceed limits below:

a. Cuts, scratches, pits, erosion, or abrasions.

(1) Depth is no more than 0.005 inch.

(2) No longer than 5 inches.

b. Dents.

(1) Depth is no more than 0.015 inch.

(2) Distance between dents is at least four times the diameter of the largest dent. Measure distance between dents edge to edge.

(3) No more than three dents in a 5 inch diameter circle.

(4) Damage to graphite fibers is no more than 0.005 inch deep.

10. **Skin Damage Around Fastener Holes and Surface Rips, Class III Damage.** See figure 4, sections C and D. This damage is skin damage which does not exceed limits below:

a. Depth is no more than 0.010 inch.

b. No longer than 1/2-inch.



c. Width is no more than 1/4-inch.

11. Skin Penetration, Class IV Damage. See figure 4, section E. Class VI damage is skin damage which does not exceed limits below:

a. Damage must be in repairable areas, figure 3.

b. Mark damage area determined by NDI (A1-F18AC-SRM-300, WP014 00) to the smallest diameter containing all damage (figure 4, section F). Diameter must be 2.0 inches or less.

c. Distance between repairs is more than six times the diameter of the largest damage cut out.

d. Edge of damage must be located within the edge distances (figure 4, section F). If a drain hole is less than one damage diameter from edge of damage to edge of drain hole, an engineering disposition is required.

e. Determine repair weight from table 2 of figure 5. Add weight to total of all previous repairs within the affected zone. If new total repair weight exceeds limits in figure 3, a depot engineering disposition is required.

12. Delaminations, Class V Damage. See figure 4, sections G, H and J. Class V damage is damage which does not exceed limits below:

a. Delamination not open to edge:

(1) Must be at least 1/2-inch away from fasteners.

(2) Must be contained within a 3 inch diameter circle.

(3) Multiple delaminations within a 3 inch diameter circle shall be considered one damage.

(4) Minimum spacing measured edge to edge between damages shall be four diameters of the largest damage.

b. Delamination open to edge:

(1) Must not be over 0.5 inches long.

(2) Must be repairable from the edge.

13. REPAIRS.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Face Shield	MIL-S-1202
Respirator	GGG-M-125/6
Tool Set-Structural Repair, Composite Materials	74D110172-1001
Vacuum Cleaner	MIL-V-21987

Materials Required

Nomenclature	Specification or Part Number
Apron, Utility	MIL-A-41829
Blind Fastener	PLT1058-6-()
Cheesecloth	CCC-C-440, Type 1, Class 1
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Isopropyl Alcohol	TT-I-735, Grade 1
Nylon Plug	DP-()
Marking Pencil	SS-P-201D
Sealing Compound	MIL-S-83430
Sealing Compound	MIL-S-8802

14. Class I, III, IV, and V are organizational maintenance. Refinish repaired area (A1-F18AC-SRM-500, WP027 00). Damage can be repaired per procedures below:

a. Repair Class I damage (A1-F18AC-SRM-250, WP008 00).

b. Repair Class III damage (A1-F18AC-SRM-250, WP010 00).

c. Repair Class IV damage as below, see figure 5. Determine repair weight from table 3 of figure 4. Add weight to total of all previous repairs within the affected zone. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

WARNING

Wear rubber gloves, face shield, respirator, and apron when making repairs. Sanding and cutting of graphite epoxy skins produces a fine dust that may cause skin irritation. Breathing an excessive amount of dust may be harmful.



Use caution when disposing of fibrous graphite and graphite epoxy scrap. Graphite fibers have high electrical conductivity. Free floating fibers that get inside unsealed or unprotected electrical equipment can cause malfunction or failure.

#### NOTE

Nonfibrous dust, caused by sanding graphite epoxy skin, is not a danger to electrical equipment and may be disposed of in the same way as any waste.

(1) Using a marking pencil, mark the smallest diameter circle which will completely cleanup damage of damaged part.

(2) Select nylon plug with diameter large enough to cover diameter marked on damaged part.

(3) Lay out correct periphery for cleanup of damage on part per table 1.

(4) Inspect hole edge to fastener line clearances (figure 4, view F). If edge distance is less than allowable distance, a depot engineering disposition is required.



Be sure router does not damage inner surface of opposite skin or substructure. Use vacuum cleaner continuously when making repairs.

(5) Install router attachment and guide on router motor.

(6) Remove damaged area using router with router bit. Vacuum dust and debris from area.

(7) Clean up damage to final hole diameter, using 1 inch rotary file or equivalent. Vacuum repair area.

(8) Insert several layers of cheesecloth, damp with clean water, into the hole to collect excess repair debris.



Isopropyl Alcohol

2



To avoid contamination of alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into alcohol.

(9) Wipe repair surface with clean cheesecloth moistened with isopropyl alcohol.

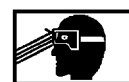
(10) For holes 1 inch diameter or less, view A, install nylon plug wet with MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00).

(11) For holes more than 1 inch diameter:

(a) Fabricate insert, inner patch, and outer patch from fiberglass, per table 2, views B, C, and D.



Sealing Compound



6

(b) Bond inner patch to insert, views E and F, with sealing compound MIL-S-83430 (A1-F18AC-SRM-200, WP011 00).

(c) Install insert/inner patch assembly into hole, views E and F, and bond with sealing compound MIL-S-83430 (A1-F18AC-SRM-200, WP011 00).

(d) Bond outer patch to skin and insert, views E and F, with sealing compound MIL-S-83430 (A1-F18AC-SRM-200, WP011 00).

(e) Drill and countersink a hole through the center of the bonded assembly, view F.



Sealing Compound



9

(f) Apply sealing compound MIL-S-8802 to threads and collar of blind fastener and install blind fastener through bonded assembly, view E, (A1-F18AC-SRM-200, WP011 00).

d. Repair Class V damage (A1-F18AC-SRM-250, WP011 01).

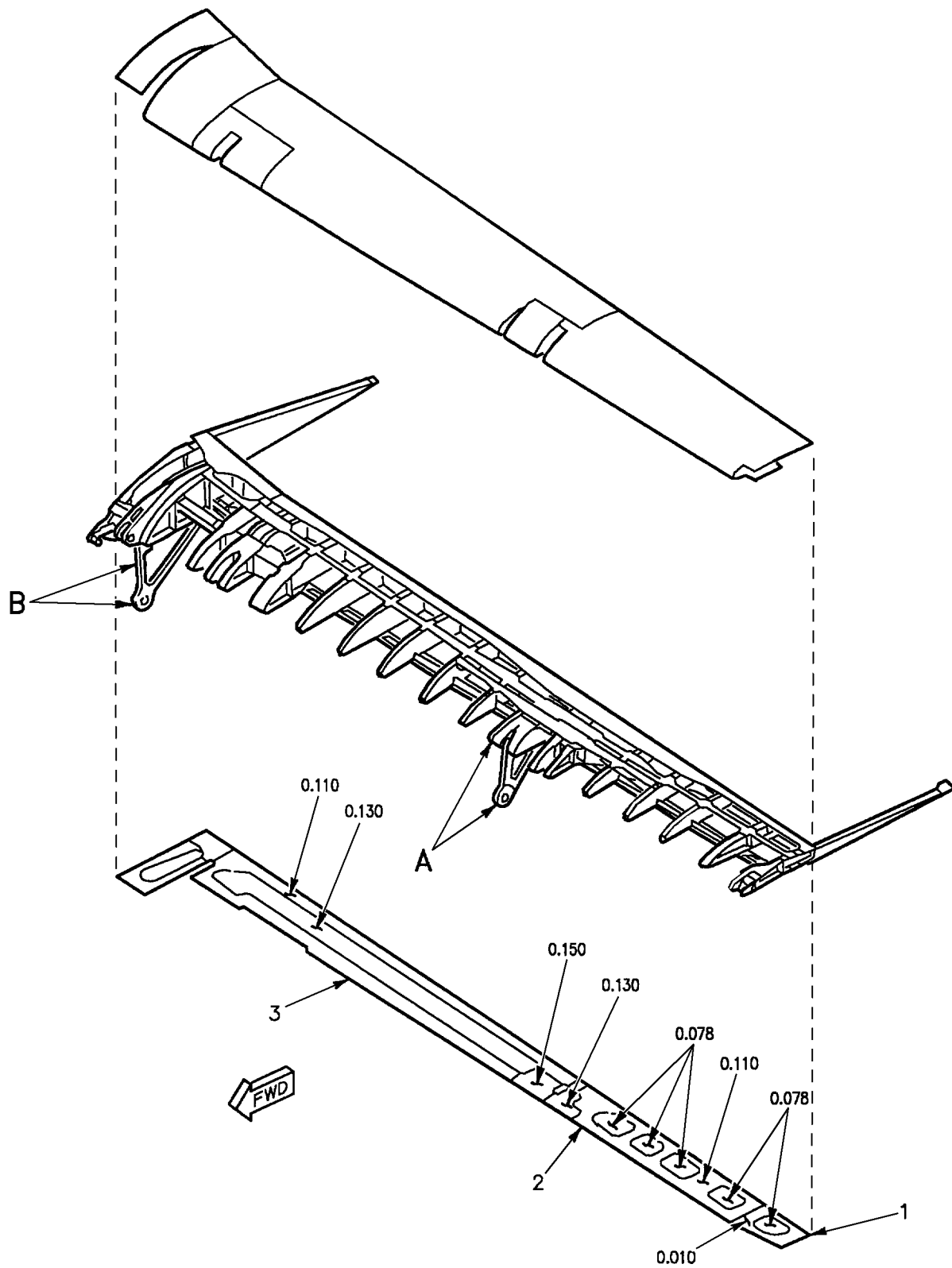


Figure 1. Material Index (Sheet 1)

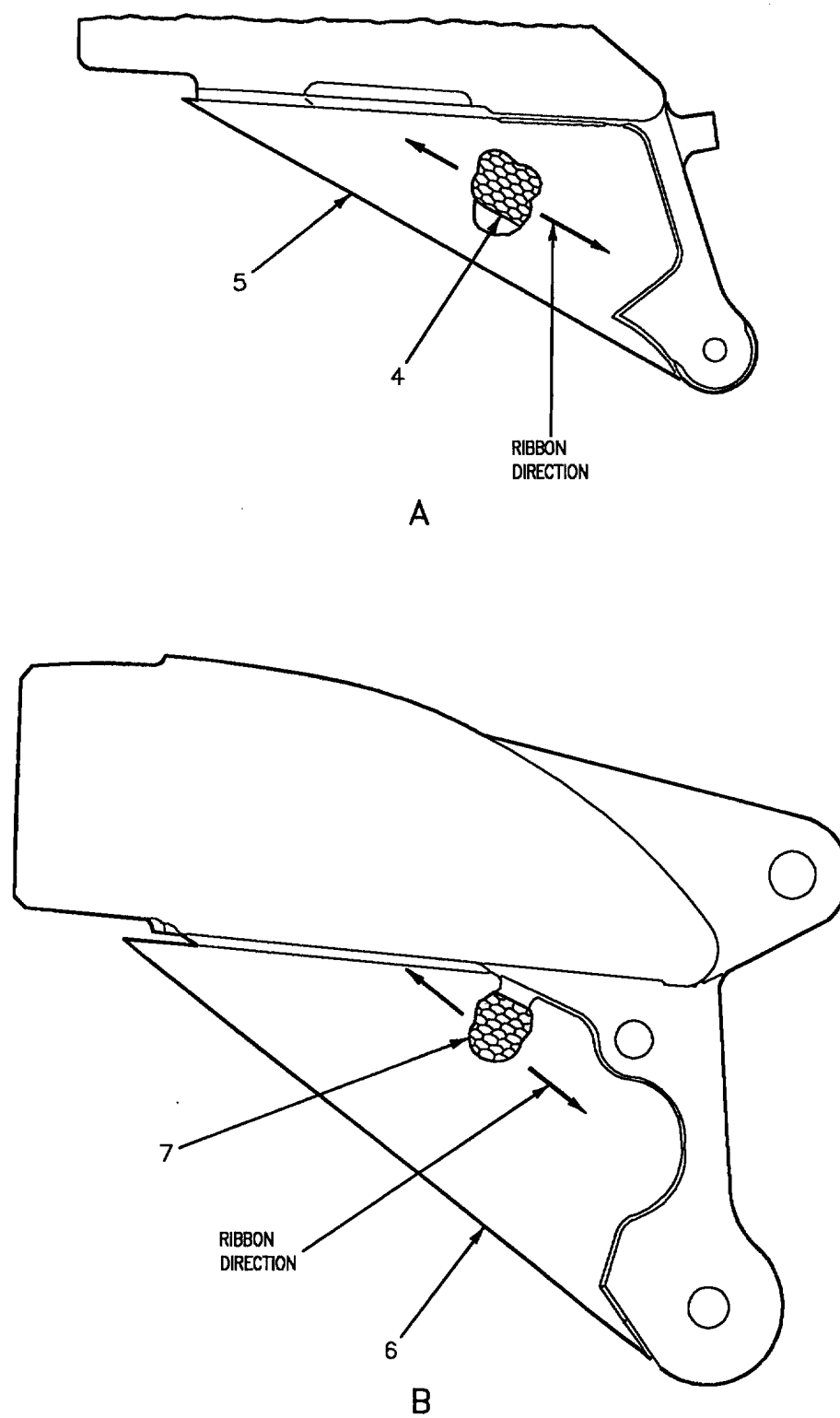


Figure 1. Material Index (Sheet 2)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	<div>3</div> <div>4</div> <div>5</div>	Closure 74A180756-1005, -1006 74A180756-1011, -1012 74A180756-1017, -1018	<div>1</div> Laminate	<div>2</div>
2	<div>3</div> <div>4</div> <div>5</div>	Closure 74A180756-1003, -1004 74A180756-1009, -1010 74A180756-1015, -1016	<div>1</div> Laminate	<div>2</div>
3	<div>3</div> <div>4</div> <div>5</div>	Closure 74A180756-1001, -1002 74A180756-1007, -1008 74A180756-1013, -1014	<div>1</div> Laminate	<div>2</div>
4	<div>6</div>	Core 74A180691-2003	<div>7</div>	5056-H39 Al Aly
5	<div>6</div>	Skin 74A180691-2001	0.030 Sheet	<div>8</div>
6	<div>6</div>	Skin 74A180690-2001	0.030 Sheet	<div>8</div>
7	<div>6</div>	Core 74A180690-2003	<div>7</div>	5056-H39 Al Aly
<b>LEGEND</b>  <div>1</div> Laminated of varying plies. <div>2</div> Graphite epoxy prepreg, carbon epoxy prepreg and glass epoxy laminates. <div>3</div> 161353 THRU 161704. <div>4</div> 161705 THRU 162444, 162474, 162476, 162477. <div>5</div> 162445 THRU 162473, 162475, 162826 AND UP. <div>6</div> 161353 THRU 162900, 162906 THRU 162908, 163094, 163097, 163103 THRU 163104, 163108, 163111 THRU 163113, 163116 THRU 163117, 163119, 163124 THRU 163126, 163129, 163131 THRU 163132, 163136, 163139 THRU 163141, 163143 THRU 163144, 163147, 163149 THRU 163150, 163152, 163156 THRU 163157, 163159, 163161 THRU 163162. <div>7</div> 3/16 hex cell X 0.0010 honeycomb. <div>8</div> Fiberglass reinforced plastic laminate.				

Figure 1. Material Index (Sheet 3)

## 15. REPLACEMENT.

## Support Equipment Required

None

## Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Cheesecloth	CCC-C-440, Type 1, Class 1
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Isopropyl Alcohol	TT-I-735, Grade 1
Paper, Abrasive	A-A-1047, Grit 320-9X11
Rivet	MS20470AD4
Sealing Compound	MIL-S-81733

## 16. INBOARD AND OUTBOARD DRIVE HINGE ASSEMBLY SKIN REPLACEMENT. See figure 2.



Be careful not to enlarge holes when drilling out rivets.

- a. Remove rivets (1 or 9) (NAVAIR 01-1A-8) attaching terminal strip (2 or 10). Remove terminal strip (2 or 10).



Be careful not to damage internal structure when removing skin (5 or 13).

- b. Remove damaged skin (5 or 13) by cutting edge bondline with a non-metallic scraper, and peeling damaged skin (5 or 13) back on each side, while cutting adhesive with a non-metallic scraper.

- c. Sand thoroughly all edge bondline mating surfaces.

- d. Scuff sand adhesive that remains bonded to honeycomb core (4 or 8), blocks (3, 6, 7, or 11, 12, and 14) and drive hinge. Roughen the adhesive surface

to promote good adhesion, don't sand to remove adhesive.

- e. Scuff sand inside surface of replacement skin (5 or 13).

- f. Remove sanding dust with vacuum.



Isopropyl Alcohol

2



To avoid contamination of alcohol, always pour alcohol into clean cheesecloth. Never dip cheesecloth into alcohol.

## NOTE

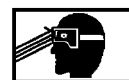
During this cleaning operation it is required that clean cheesecloth and clean alcohol be used.

- g. Thoroughly clean bond area (skin and drive hinge) with clean cheesecloth moistened with alcohol. Following each alcohol cleaning, wipe clean with clean dry cheesecloth before alcohol evaporates to remove and disperse contaminants.

- h. Continue cleaning operation until there is an oil-free, water break-free surface.

## NOTE

After cleaning procedure starts, do not touch surfaces to be bonded with bare hands. Wear clean cotton gloves while handling parts. If desired, rubber gloves may be worn under clean cotton gloves.



Adhesive

3

- i. Mix adhesive (A1-F18AC-SRM-200, WP011 00).

- j. Apply adhesive (A1-F18AC-SRM-200, WP011 00).

k. Cure adhesive within 30 minutes after mixing, using heat cure method (A1-F18AC-SRM-250, WP004 00).

l. Visually inspect for evidence of unbonds. Unbonds require depot engineering disposition.

m. Clean terminal strip (2 and 10) and mating surface. Install terminal strip (2 or 10) with MS20470AD4 rivets (1 or 9) length determined on installation.



Sealing Compound

10

n. Fillet seal skin (5 or 13) edge with sealing compound (A1F18AC-SRM-200, WP011 00).

o. Butt seal skin (5 or 13) edge with sealing compound (A1-F18AC-SRM-200, WP011 00).

p. Refinish drive hinge assembly skin (5 or 13) (A1-F18AC-SRM-500, WP027 00).

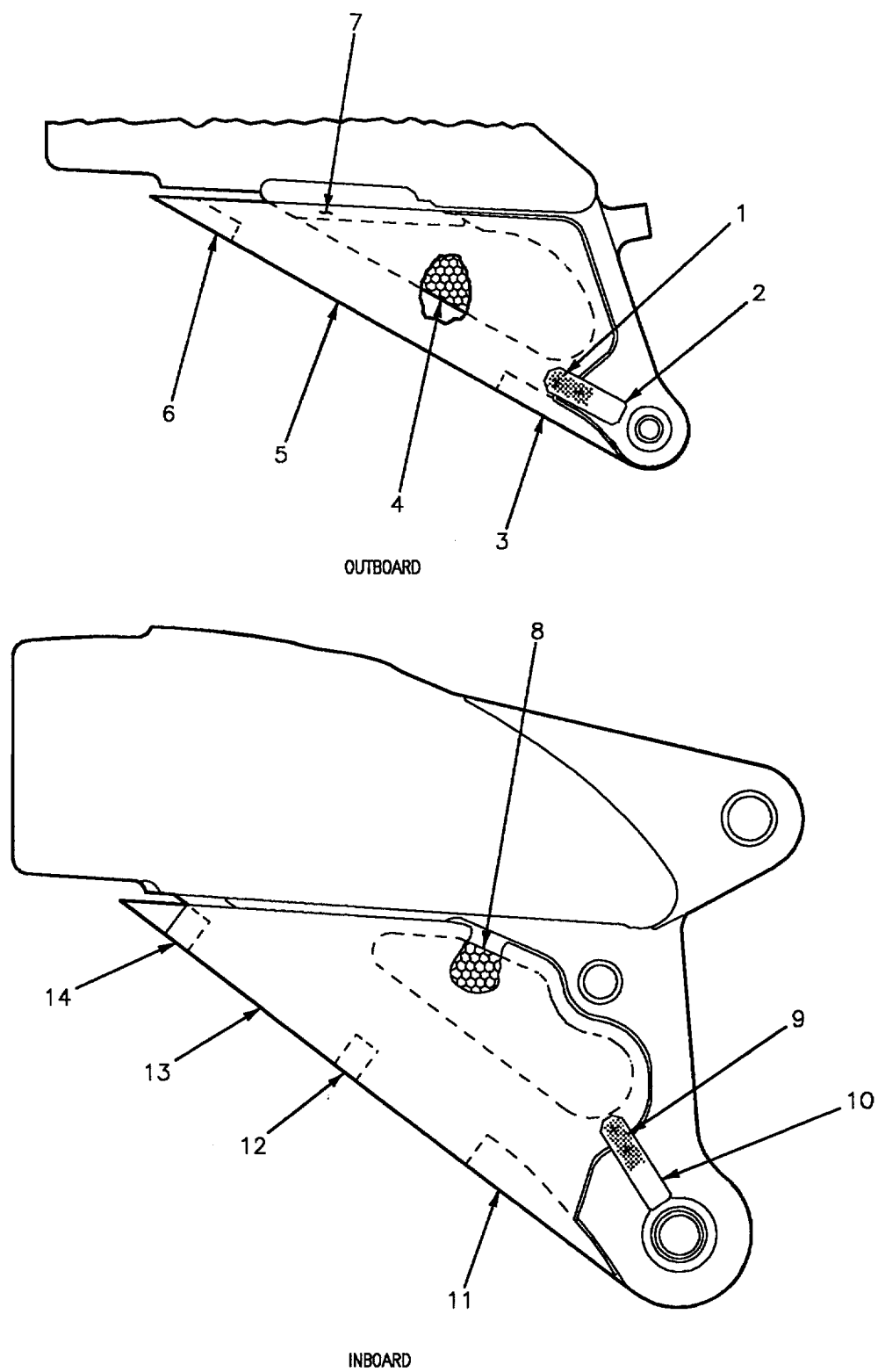
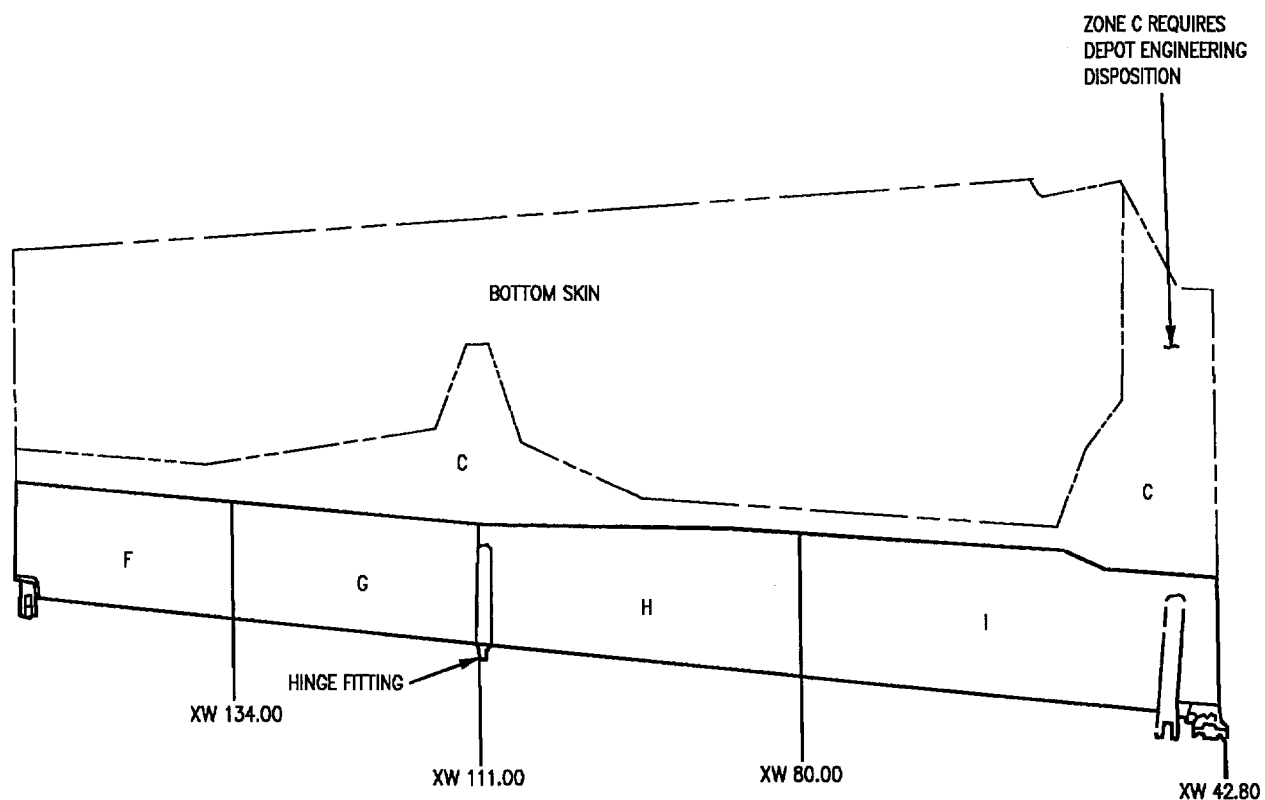


Figure 2. Inboard and Outboard Drive Hinge Skin Replacement (Sheet 1)



INDEX NO	NOMENCLATURE
1	MS20470AD4 RIVET
2	TERMINAL STRIP
3	BLOCK
4	HONEYCOMB CORE
5	SKIN
6	BLOCK
7	BLOCK
8	HONEYCOMB CORE
9	MS20470AD4 RIVET
10	TERMINAL STRIP
11	BLOCK
12	BLOCK
13	SKIN
14	BLOCK

Figure 2. Inboard and Outboard Drive Hinge Skin Replacement (Sheet 2)



ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT (LB)
F	2
G	2
H	4
I	4

Figure 3. Repair Weight Zones (Sheet 1)

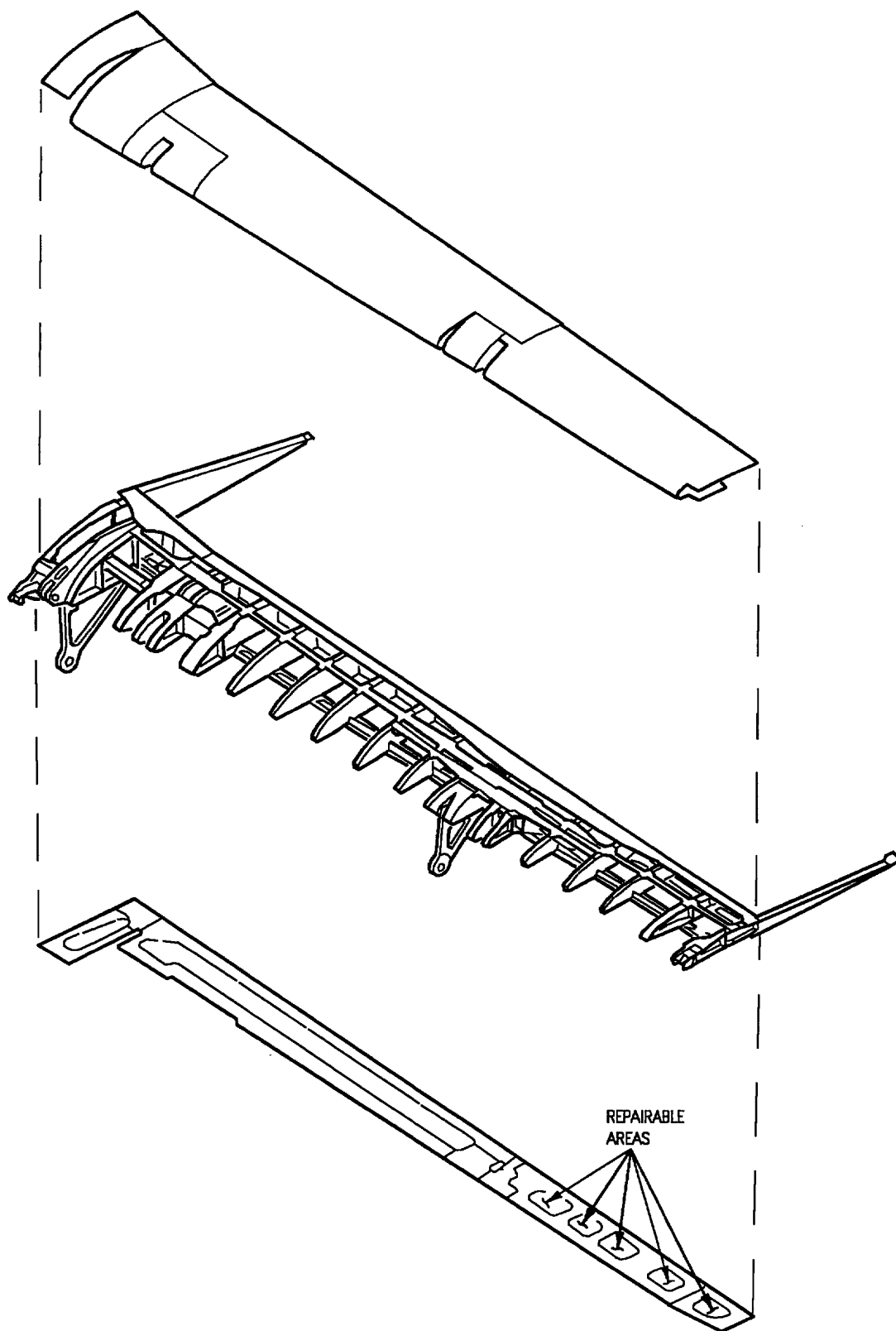


Figure 3. Repair Weight Zones (Sheet 2)

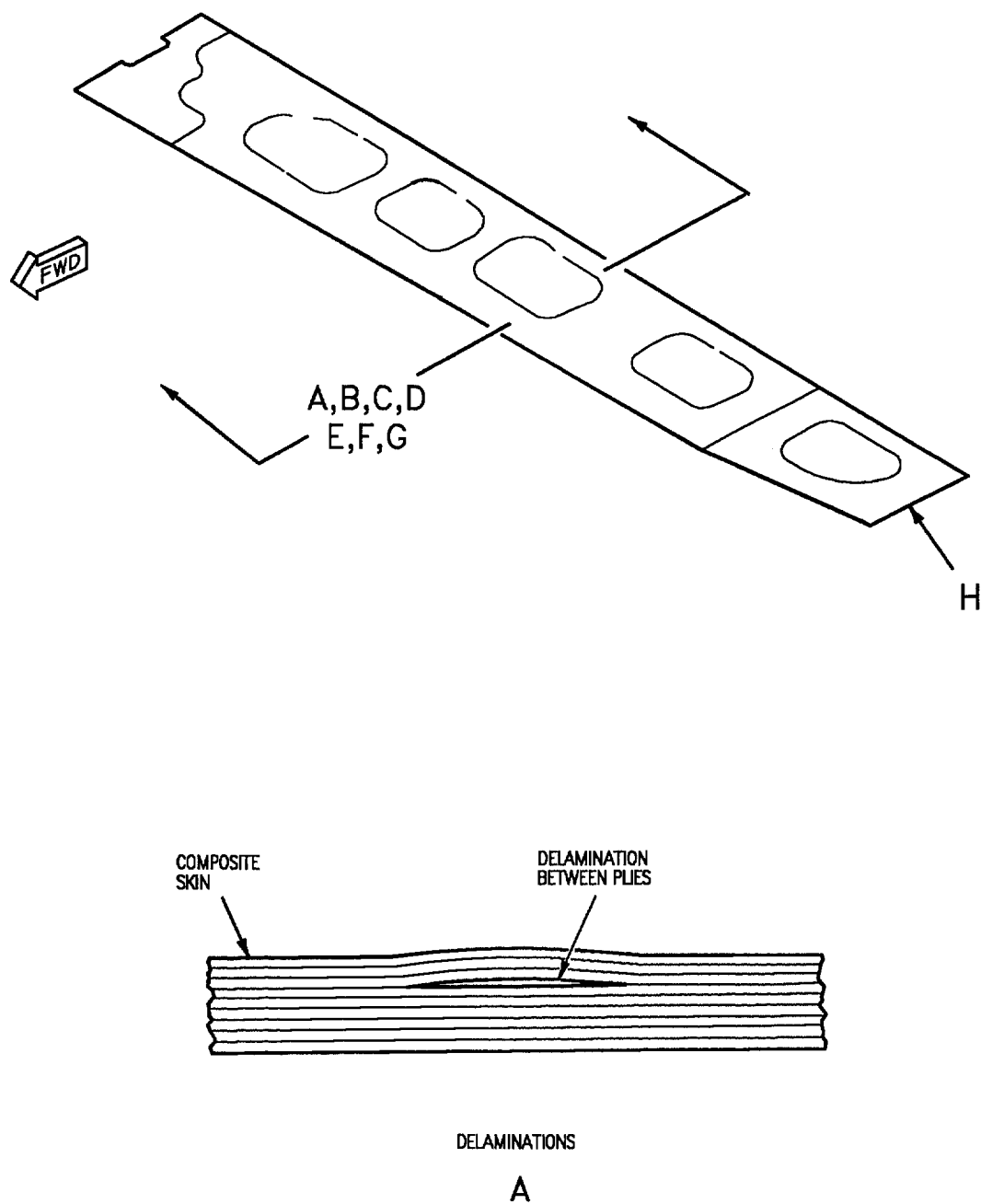


Figure 4. Negligible and Repairable Damage, Composite Skin (Sheet 1)

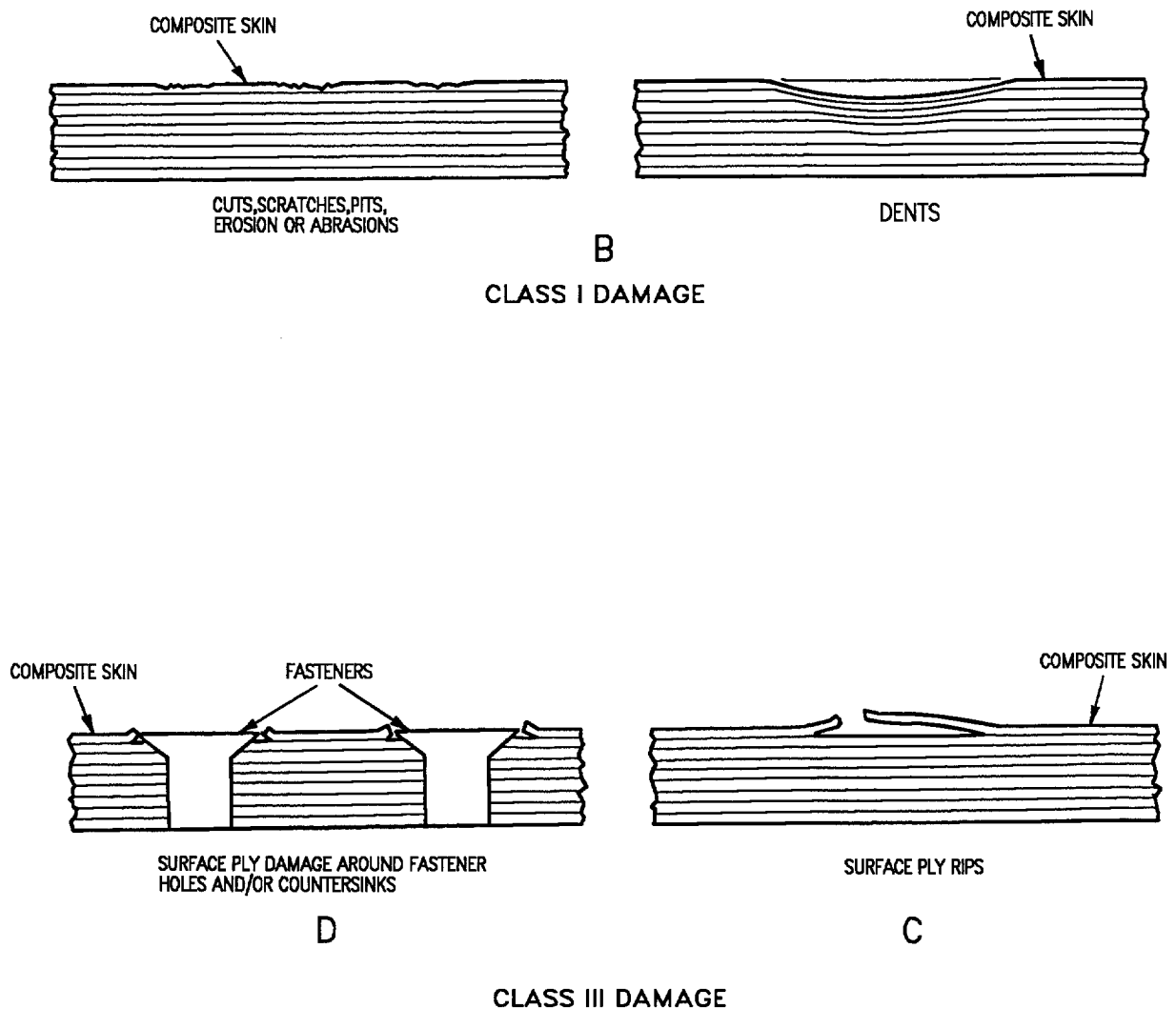
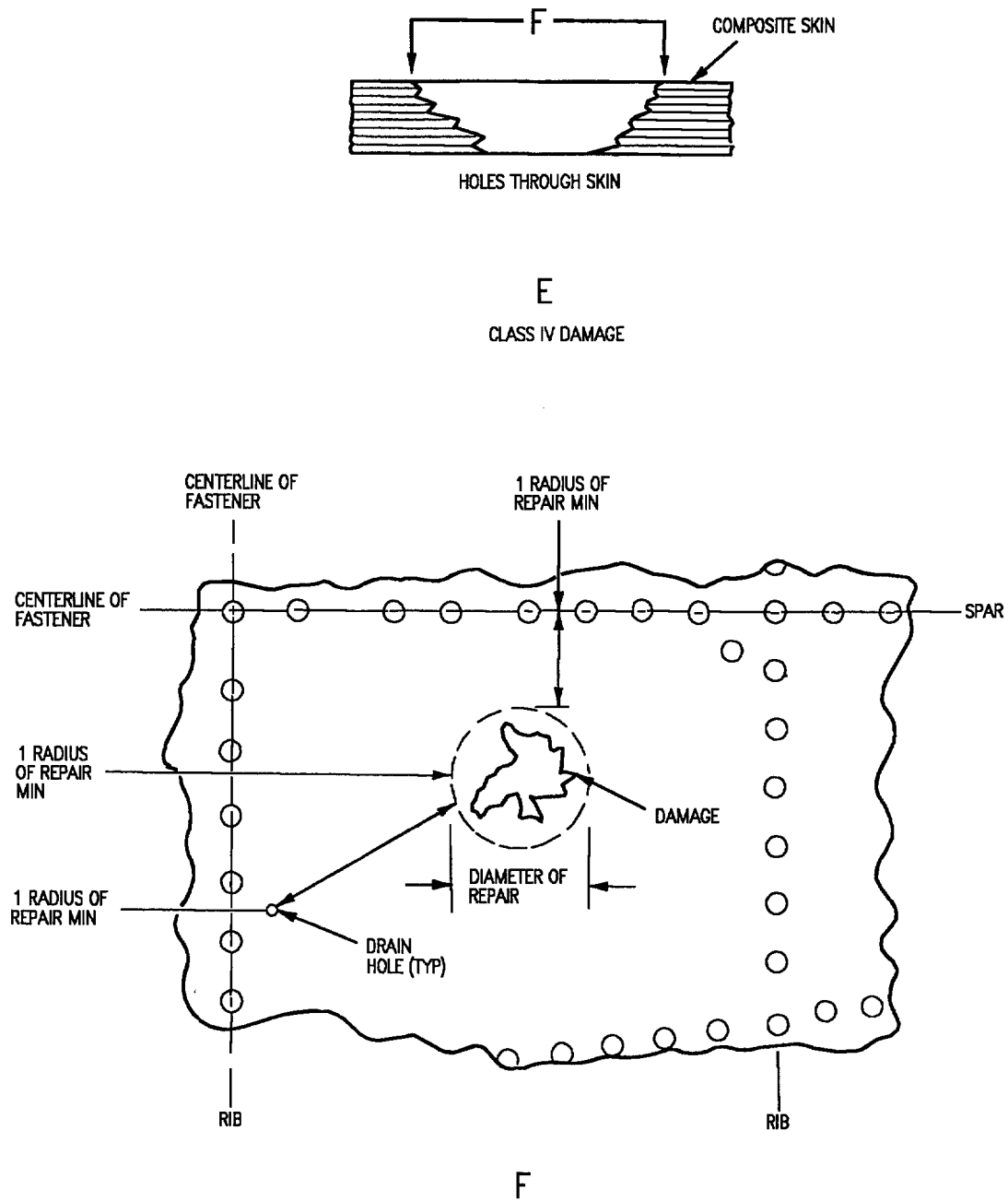


Figure 4. Negligible and Repairable Damage, Composite Skin (Sheet 2)



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Figure 4. Negligible and Repairable Damage, Composite Skin (Sheet 3)

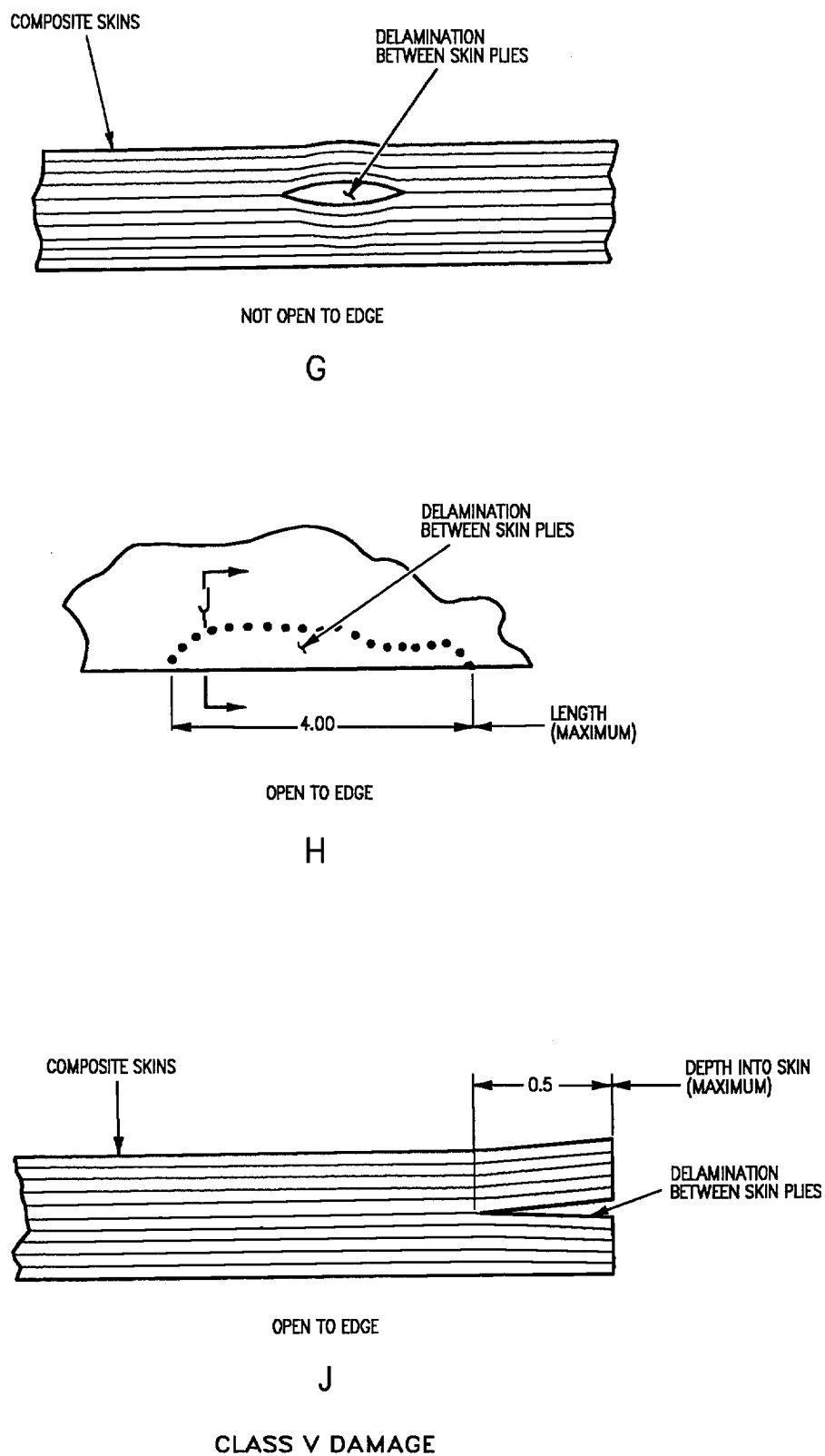


Figure 4. Negligible and Repairable Damage, Composite Skin (Sheet 4)

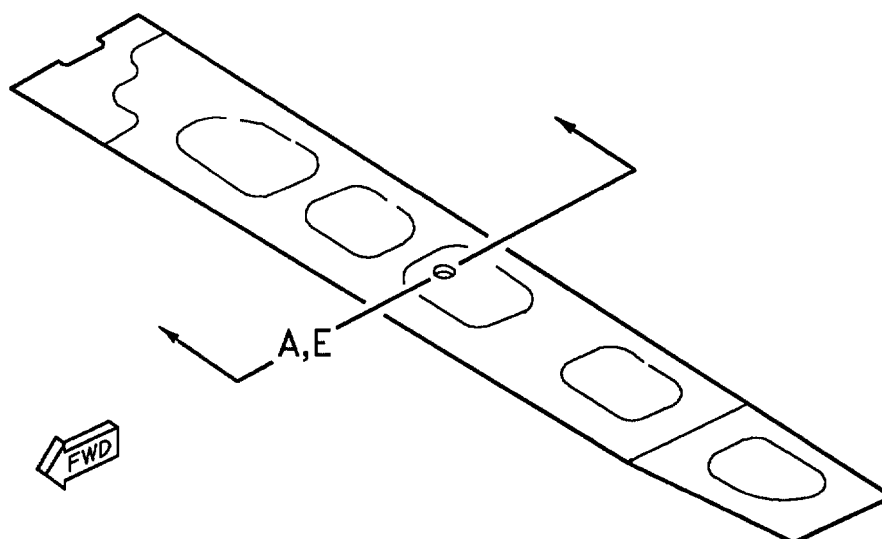


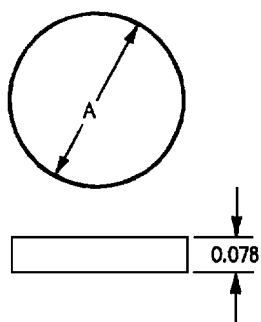
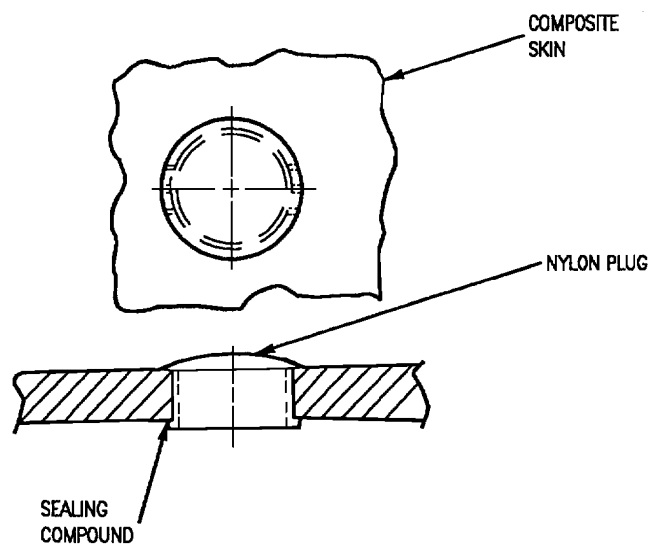
TABLE 1. CLEAN-UP HOLE DIAMETER		
MINIMUM DAMAGE DIAMETER	CLEAN-UP HOLE DIAMETER	REPAIR
0 - 0.48	0.500	DP-500 NYLON PLUG
0.49 - 0.95	1.000	DP-1000 NYLON PLUG
1.000 - 1.249	1.25	} SEE VIEWS B,C, D,E,AND F
1.250 - 1.499	1.50	
1.500 - 1.749	1.75	
1.750 - 2.000	2.00	

TABLE 2. REPAIR DIMENSIONS				
DIMENSION	CLEAN-UP HOLE DIAMETER			
	1.25	1.50	1.75	2.00
A	1.25	1.50	1.75	2.00
B	3.00	3.00	3.50	3.50
C	1.00	1.25	1.50	1.75
D	3.25	3.50	3.75	4.00

TABLE 3. REPAIR WEIGHTS	
CLEAN-UP HOLE DIA	WEIGHT (LBS)
1.25	0.08
1.50	0.10
1.75	0.11
2.00	0.13

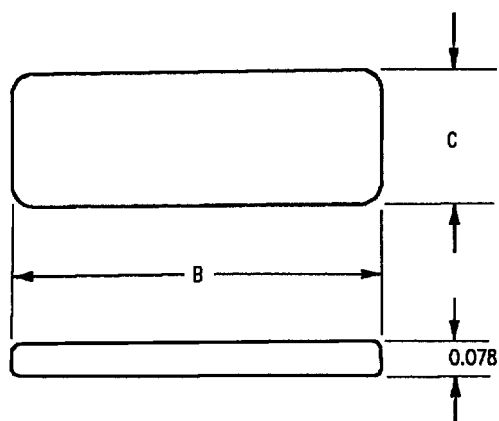
Figure 5. Class IV Repair (Sheet 1)



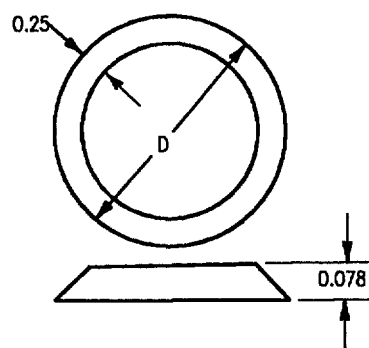


B  
FIBERGLASS INSERT

Figure 5. Class IV Repair (Sheet 2)

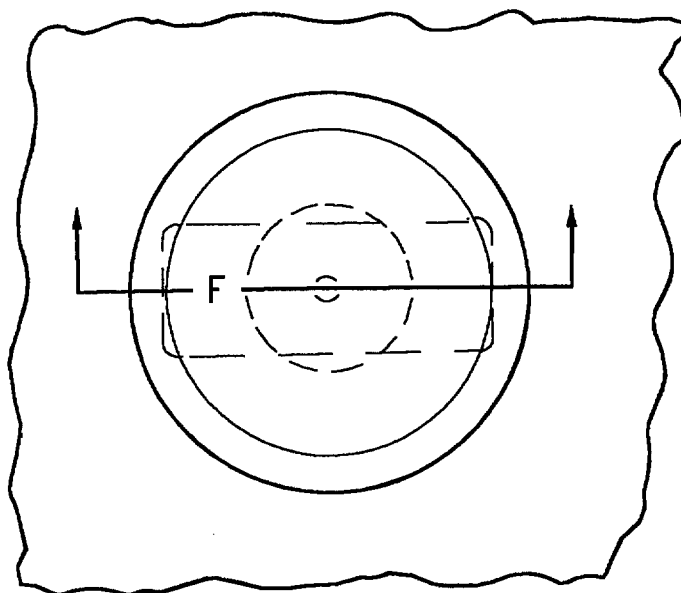


FIBERGLASS INNER PATCH

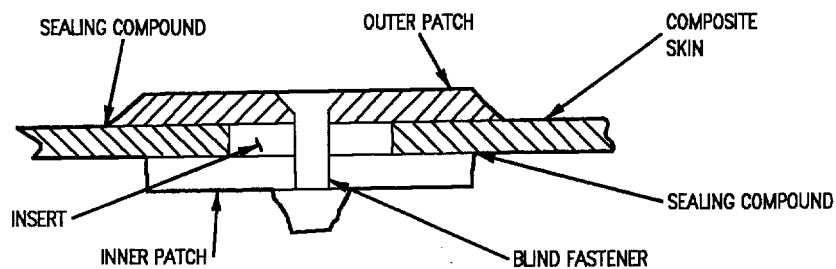


FIBERGLASS OUTER PATCH

Figure 5. Class IV Repair (Sheet 3)



E  
PATCH INSTALLATION



F

Figure 5. Class IV Repair (Sheet 4)



## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## MAINTENANCE FIXTURE, RE174180003

## TRAILING EDGE FLAP

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Drilling Machines .....	WP004 17
Bushings Removal, Installation, and Reaming Tool Set, Part No. 74D110174-1001 .....	WP004 37

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Installation of Cellular Core Assembly, 74A180621 .....	61
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Installation of Outboard Hinge Rib, 74A180691 .....	28
Installation of Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 .....	36
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## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The trailing edge flap maintenance fixture (fixture) is used to evaluate and repair the trailing edge flap (flap). The fixture contains locators, for various details on the flap and supports to hold the flap in position during repair actions. The supports and locators also serve as gaging surfaces for damage inspection. Minor damage repairs and trimming may be done in the fixture. The fixture requires accurate leveling and verification with an alignment kit, before use and should be gage recycled with the trailing edge flap alignment kit to verify fixture remains accurate.

## 3. INSTALLATION OF TRAILING EDGE FLAP INTO MAINTENANCE FIXTURE. See figure 1.

## Support Equipment Required

None

## Materials Required

None

## NOTE

All removable and/or rotating details shall be removed or retracted before installing flap.

a. Install locators (details 122 and 272) on support (detail 40) using L-Pins (detail 212) and cap screws (detail 179), view A.

b. Install locators (detail 149 and 187) on support (detail 37) using L-pins (detail 212) and cap screw (detail 179), view B.

c. Align flap hinge ribs with applicable details and insert pin (detail 196) at inboard hinge rib, view A, and pin (detail 185) at outboard hinge rib, view B.

d. Install hand knob (detail 124) on pin (detail 196) snugging the hinge bearing against outboard surface of locator (detail 272), view A.

## NOTE

No hand knob is required on pin (detail 185) at this time.

e. Install contour boards (details 139 and 295) using L-pins (detail 212) and hand knobs (detail 146), views C and D.

f. Push flap into position against contour boards (details 139 and 295) and install contour boards (details 140 and 141) using L-pins (detail 115), views C and D.

g. Install locators (details 238, 239, 240, and 241) using L-pins (detail 212) and hand knobs (detail 146), views C and D.

h. Install contour boards (details 236 and 237) using L-pins (detail 212) and hand knobs (detail 146), views C and D.

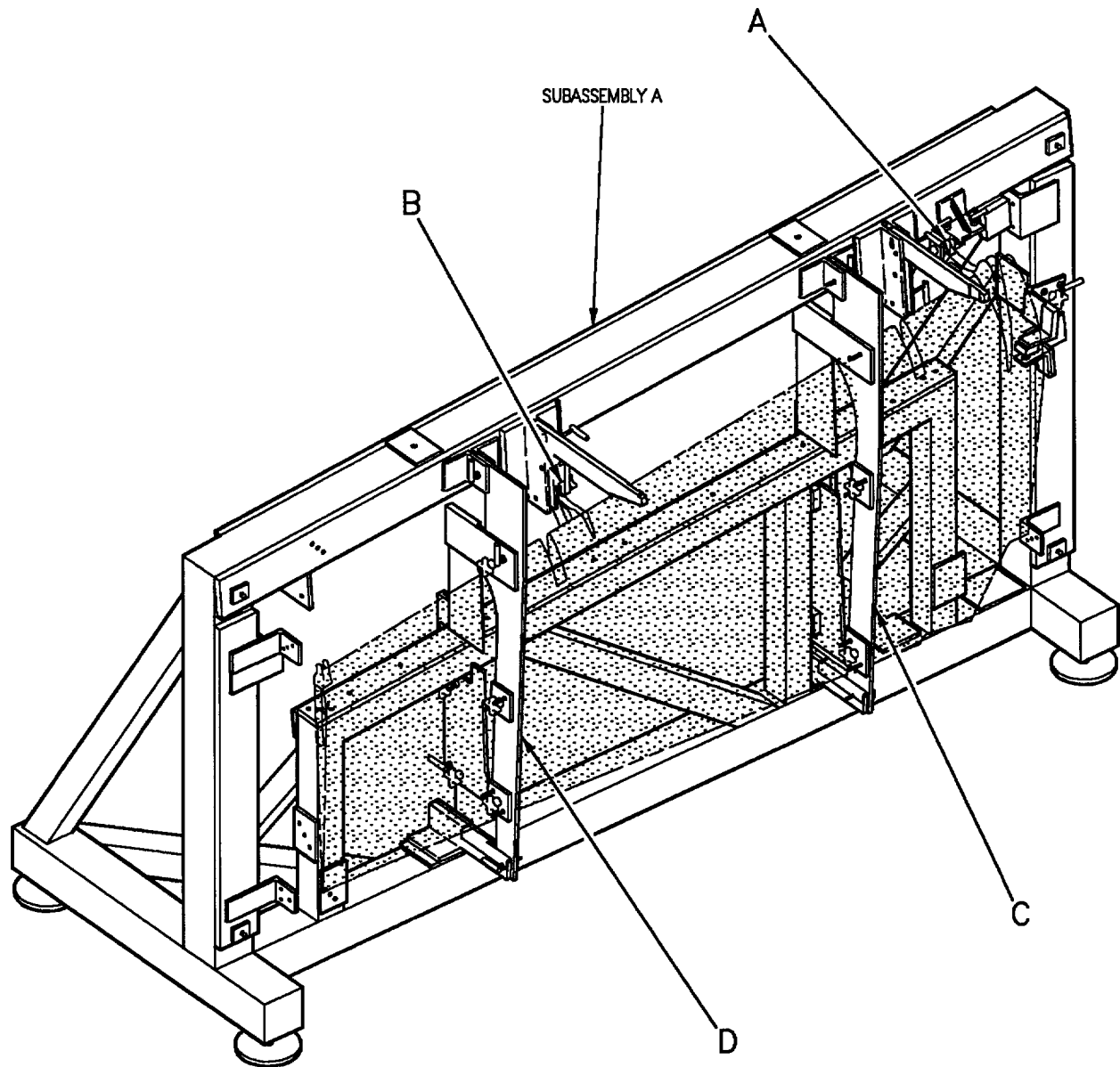


Figure 1. Installation of Flap into Maintenance Fixture (Sheet 1)

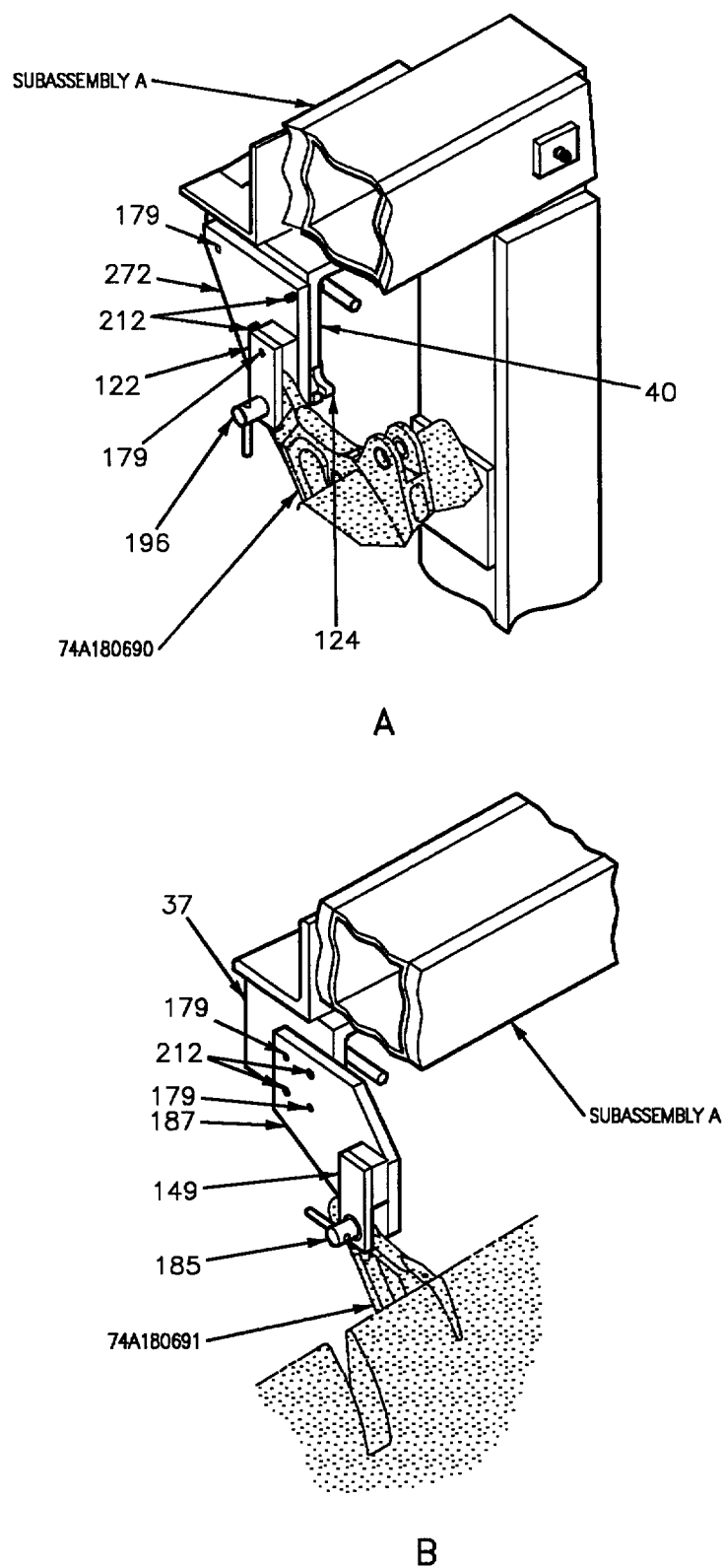


Figure 1. Installation of Flap into Maintenance Fixture (Sheet 2)



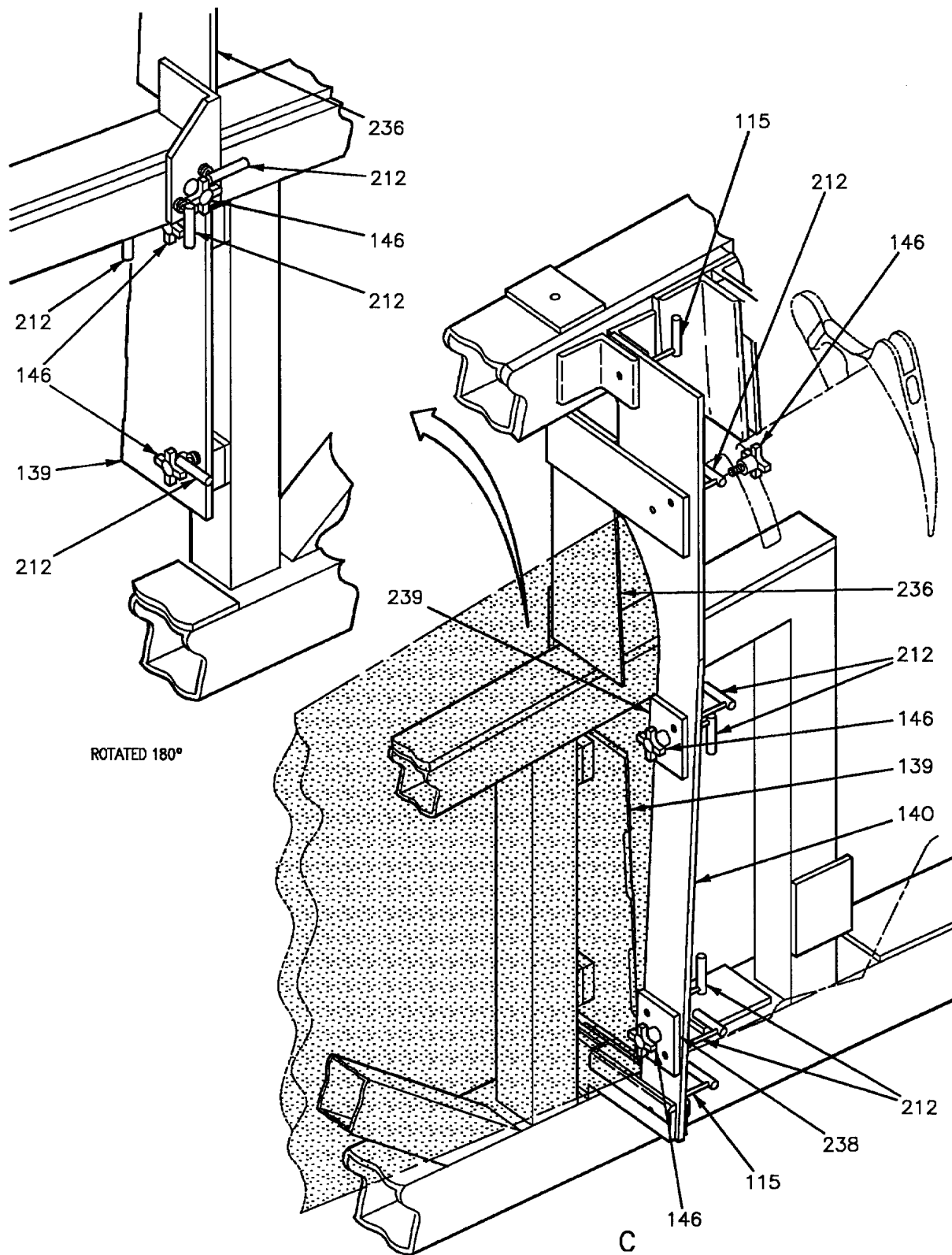


Figure 1. Installation of Flap into Maintenance Fixture (Sheet 3)

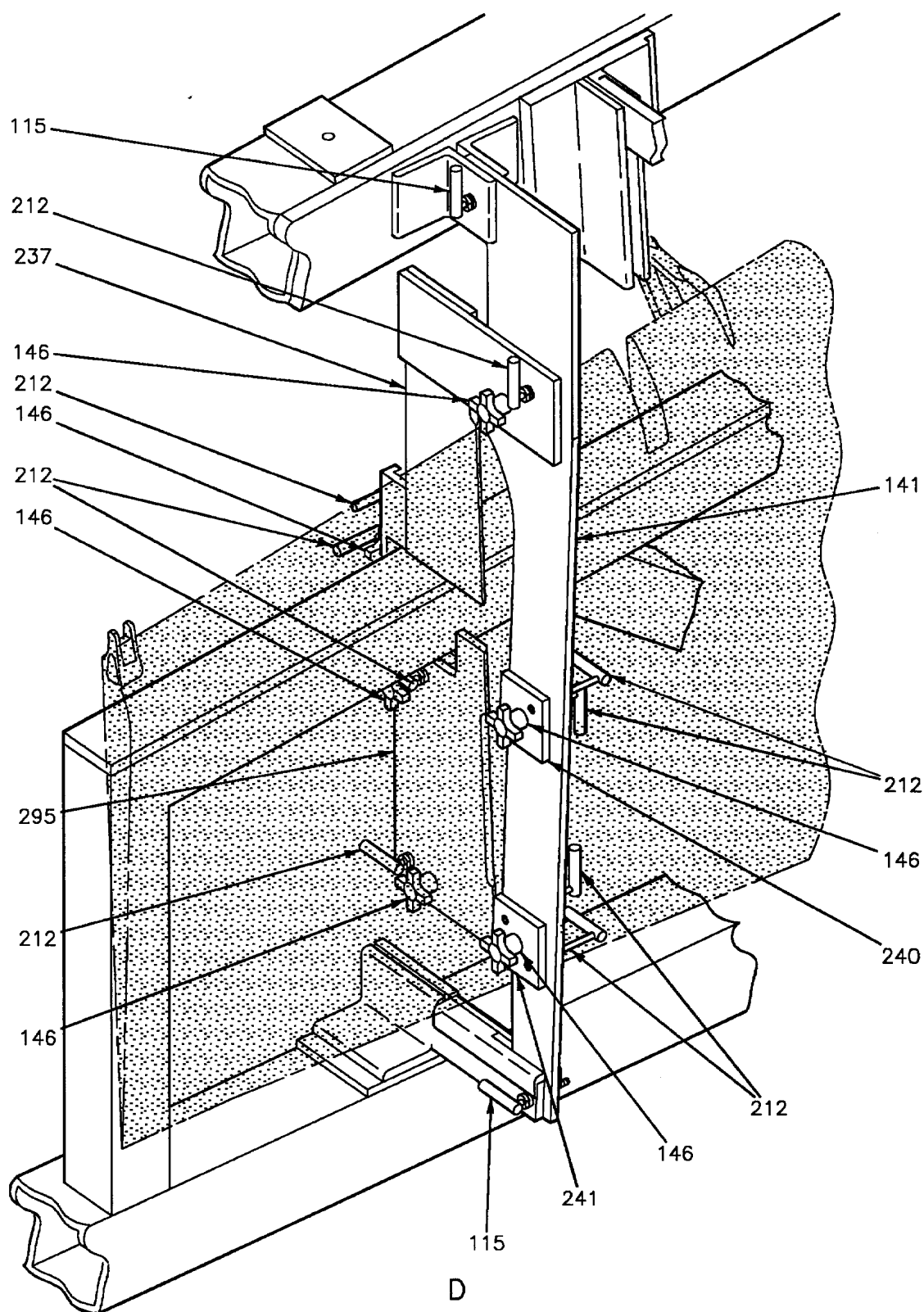


Figure 1. Installation of Flap into Maintenance Fixture (Sheet 4)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
37	Support	Supports details 149 and 187.
40	Support	Supports details 122 and 272.
115	L-Pin	Locates and attaches details 140 and 141 to subassembly A.
122	Locator	Locates details for installing flap.
124	Hand Knob	Secures detail 196 for locating flap.
139, 295	Contour Board	Locates lower aft mold line of flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures contour boards to subassembly A.
149	Locator	Locates details for installing flap.
179	Cap Screw	Secures details 37 and 40.
185	Pin	Locates outboard flap hinge.
187	Locator	Locates details for installing flap.
196	Pin	Locates inboard flap hinge.
212	L-Pin	Locates and attaches contour boards to subassembly A.
236, 237	Contour Board	Locates lower forward mold line of flap.
238, 239, 240, and 241	Locator	Locates upper mold line of flap.
272	Locator	Locates details for installing flap.

Figure 1. Installation of Flap into Maintenance Fixture (Sheet 5)

4. MOLD LINE CONTOUR INSPECTION. See figure 2.

## Support Equipment Required

None

## Materials Required

None

a. Install contour boards (details 180 and 208) at XW152.750 and contour boards (detail 229 and 230) at XW44.140 using L-pins (detail 115) and hand knobs (detail 146), views A, B, C, D, F, and G.

b. Inspect gap between contour boards (details 180, 208, 229, and 230) and flap for a nominal gap of 0.125, view E.

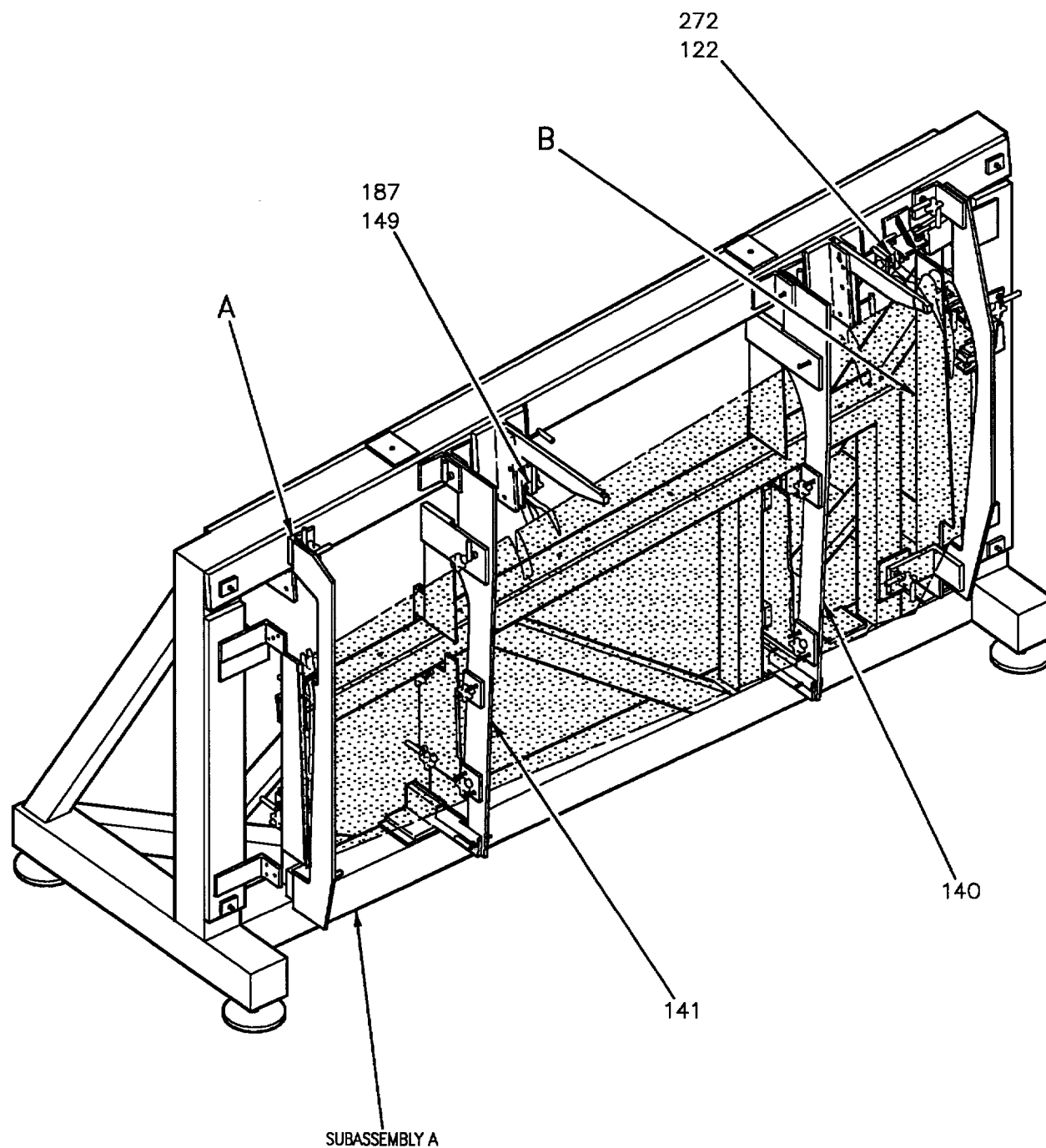


Figure 2. Mold Line Contour Inspection (Sheet 1)

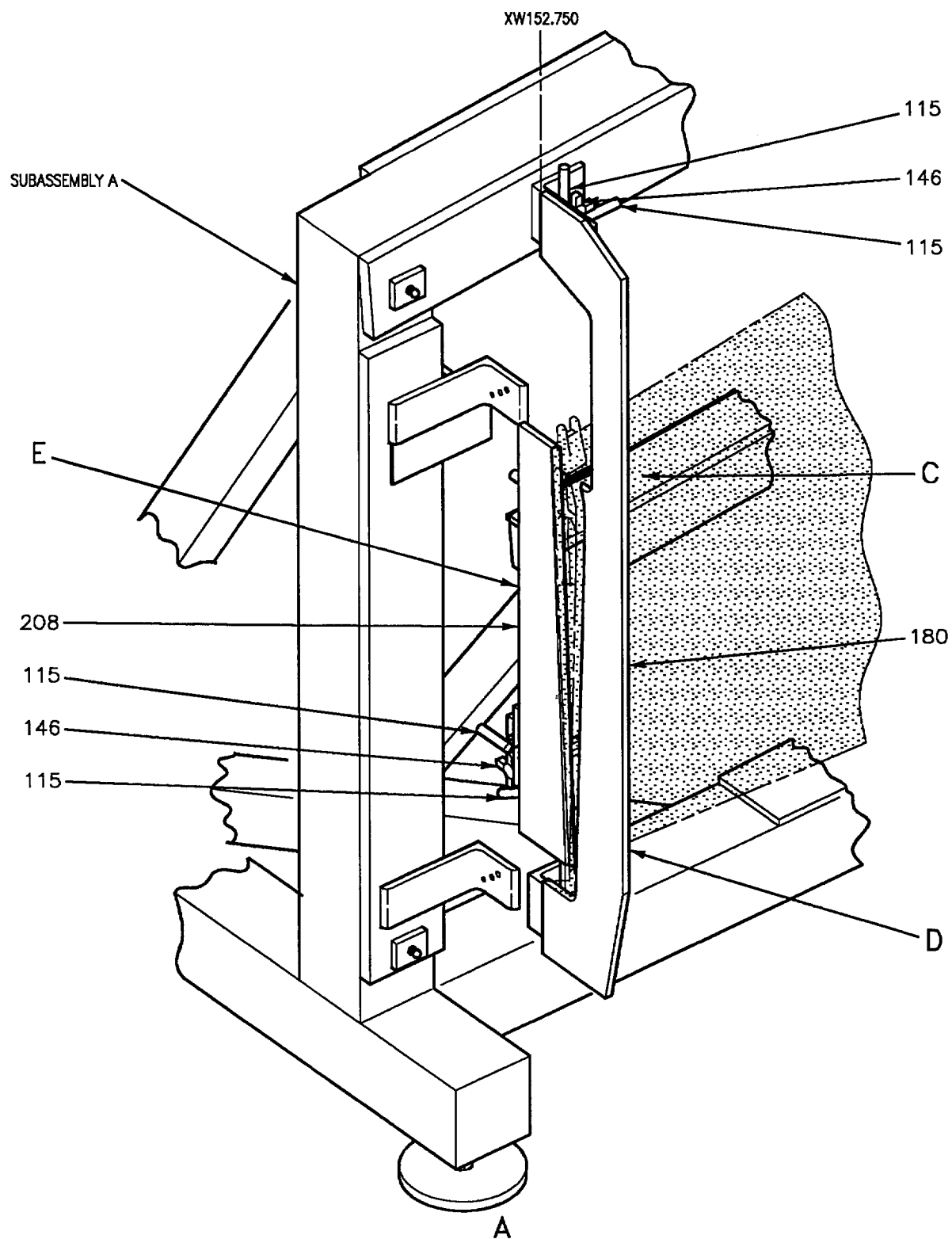


Figure 2. Mold Line Contour Inspection (Sheet 2)

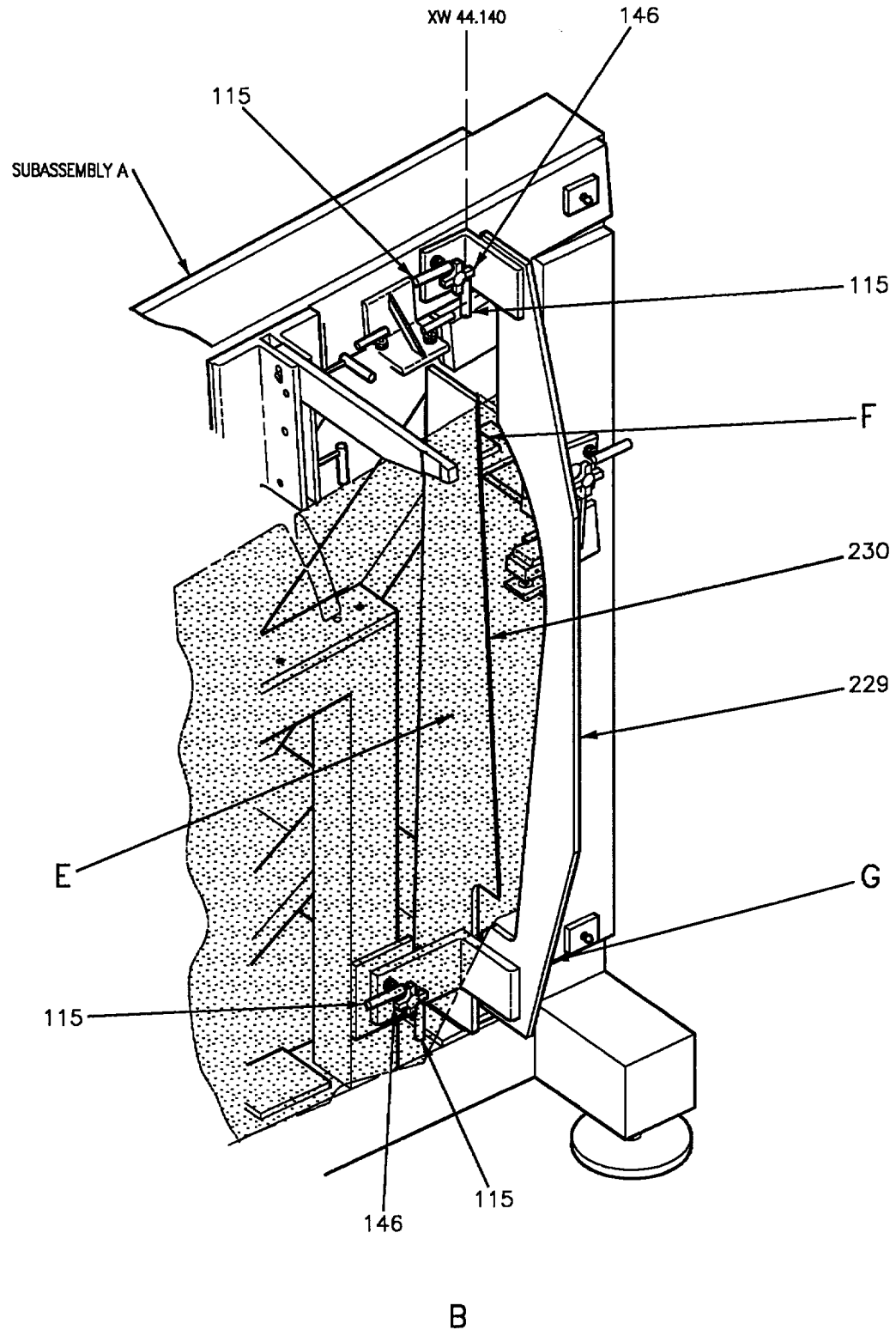


Figure 2. Mold Line Contour Inspection (Sheet 3)

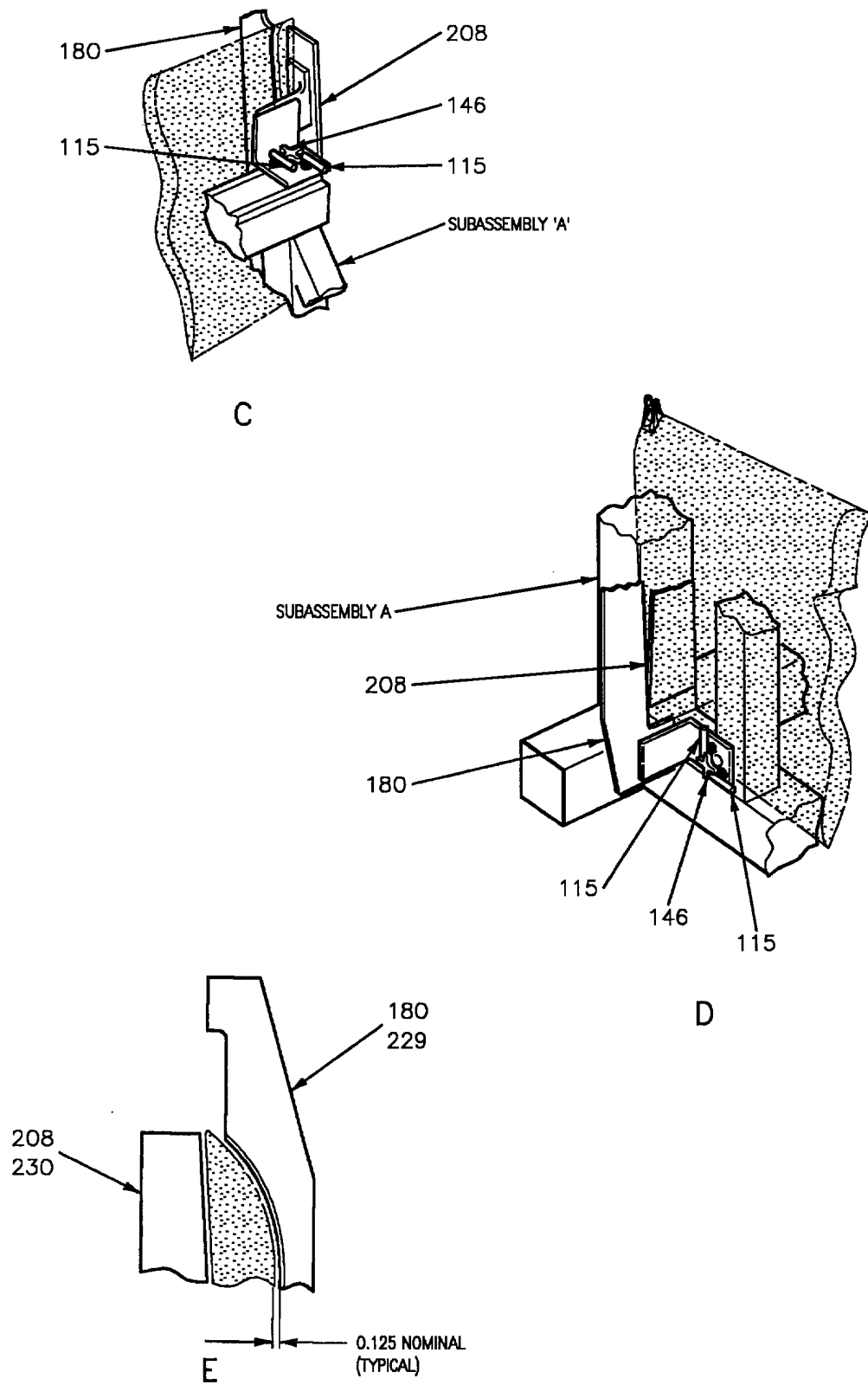


Figure 2. Mold Line Contour Inspection (Sheet 4)



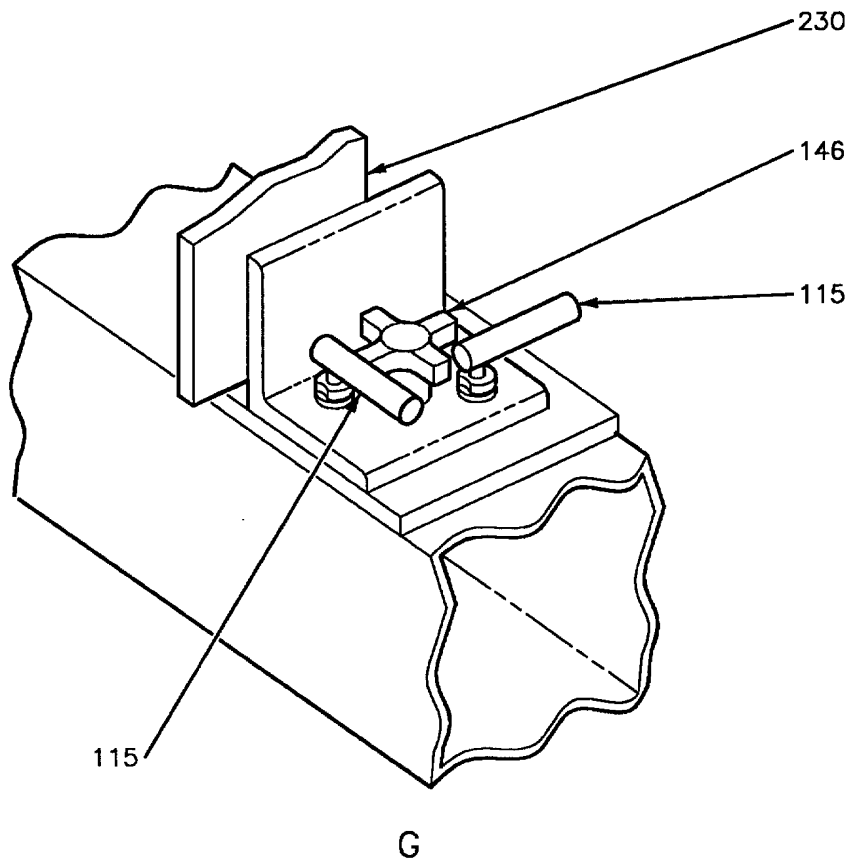
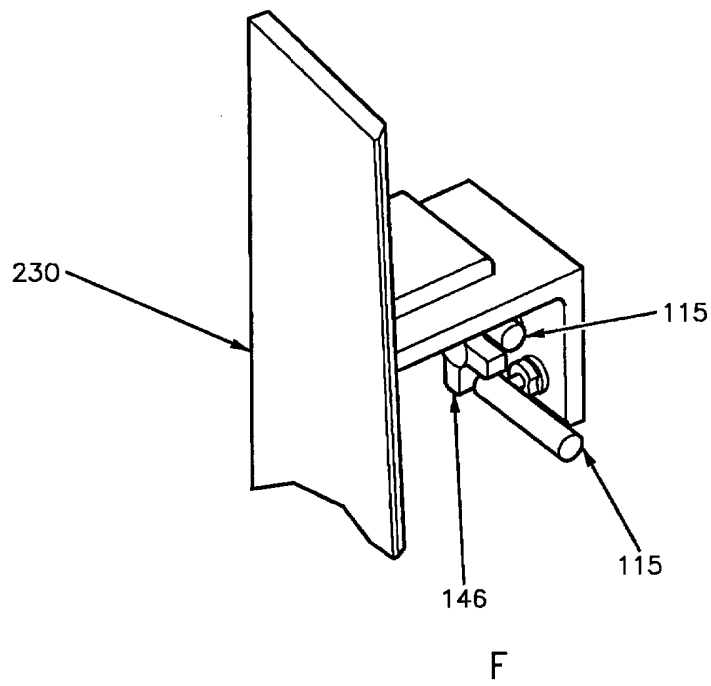


Figure 2. Mold Line Contour Inspection (Sheet 5)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
115	L-Pin	Locates and attaches details 180, 208, 229 and 230 to subassembly A.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures details 180, 208, 229, and 230 to subassembly A.
149, 187	Locator	Locates details for installing flap.
180, 208	Contour Board	Inspects mold line contour at XW152.750.
229, 230	Contour Board	Inspects mold line contour at XW44.140.
272	Locator	Locates details for installing flap.

Figure 2. Mold Line Contour Inspection (Sheet 6)

5. TRIMMING UPPER AND LOWER SKINS. See figure 3.

## Support Equipment Required

None

## Materials Required

None

a Loosen locators (details 238, 239, 240, and 241).

b. Install trim boards (details 33 and 35) on sub-assembly A using L-pins (detail 155) and hand knobs (details 154 and 156), view C.

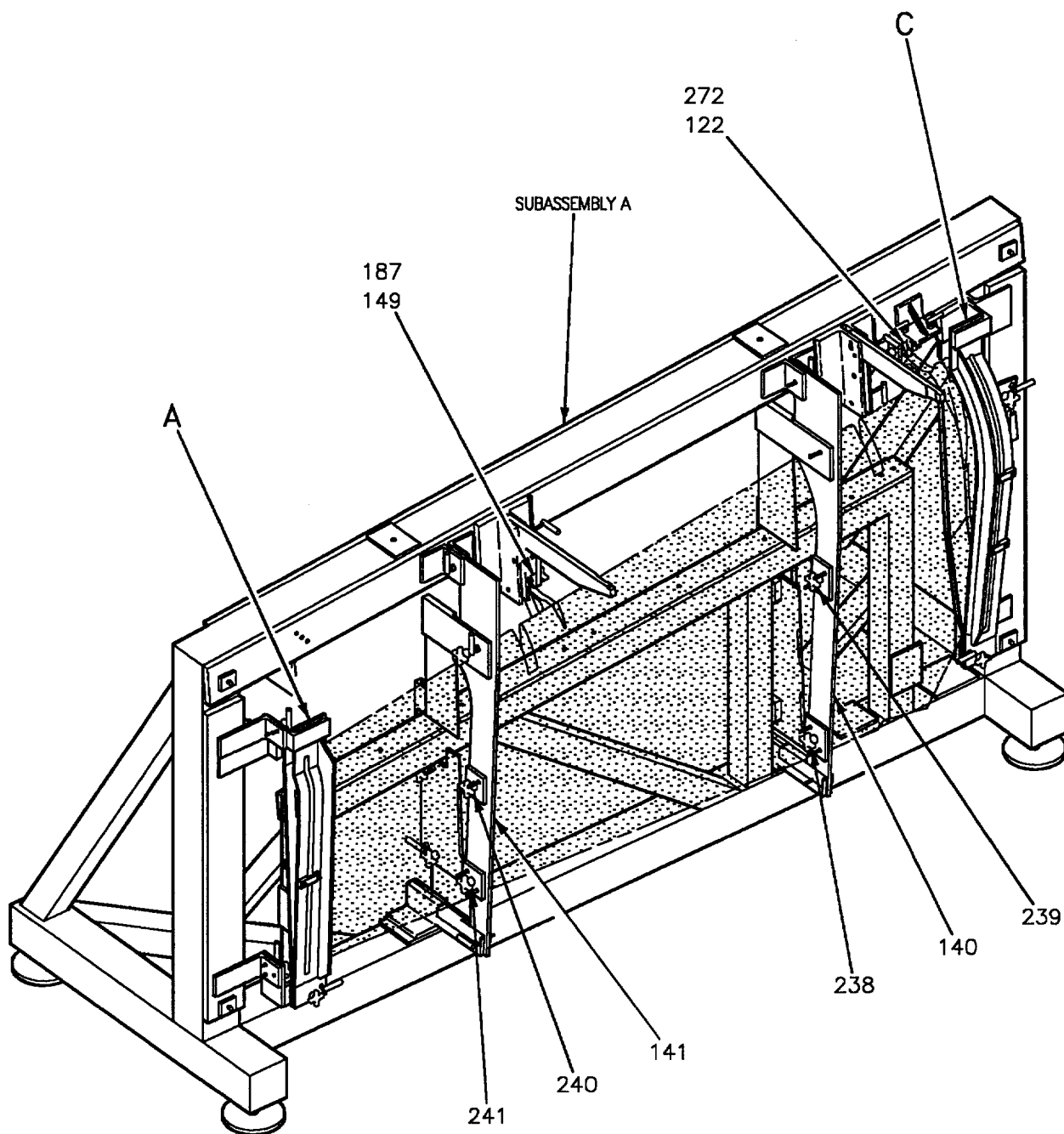
c. Install trim boards (details 34 and 36) on sub-assembly A using L-pins (detail 155) and hand knobs (details 154 and 156), view A.

d. Adjust trim boards (details 33, 34, 35, and 36) if excessive gap exists between boards and flap skins, by installing L-pins (detail 155) in slotted holes and removing fixed position L-pins, allowing trim boards to be placed next to skins.

e. Tighten hand knobs (details 154 and 156).

f. Tighten locators (details 238, 239, 240, and 241) next to skin.

g. Swing trim board links (detail 205) into locked position, six places, and tighten shoulder screws (detail 206), view B.



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Figure 3. Trimming Upper and Lower Skins (Sheet 1)

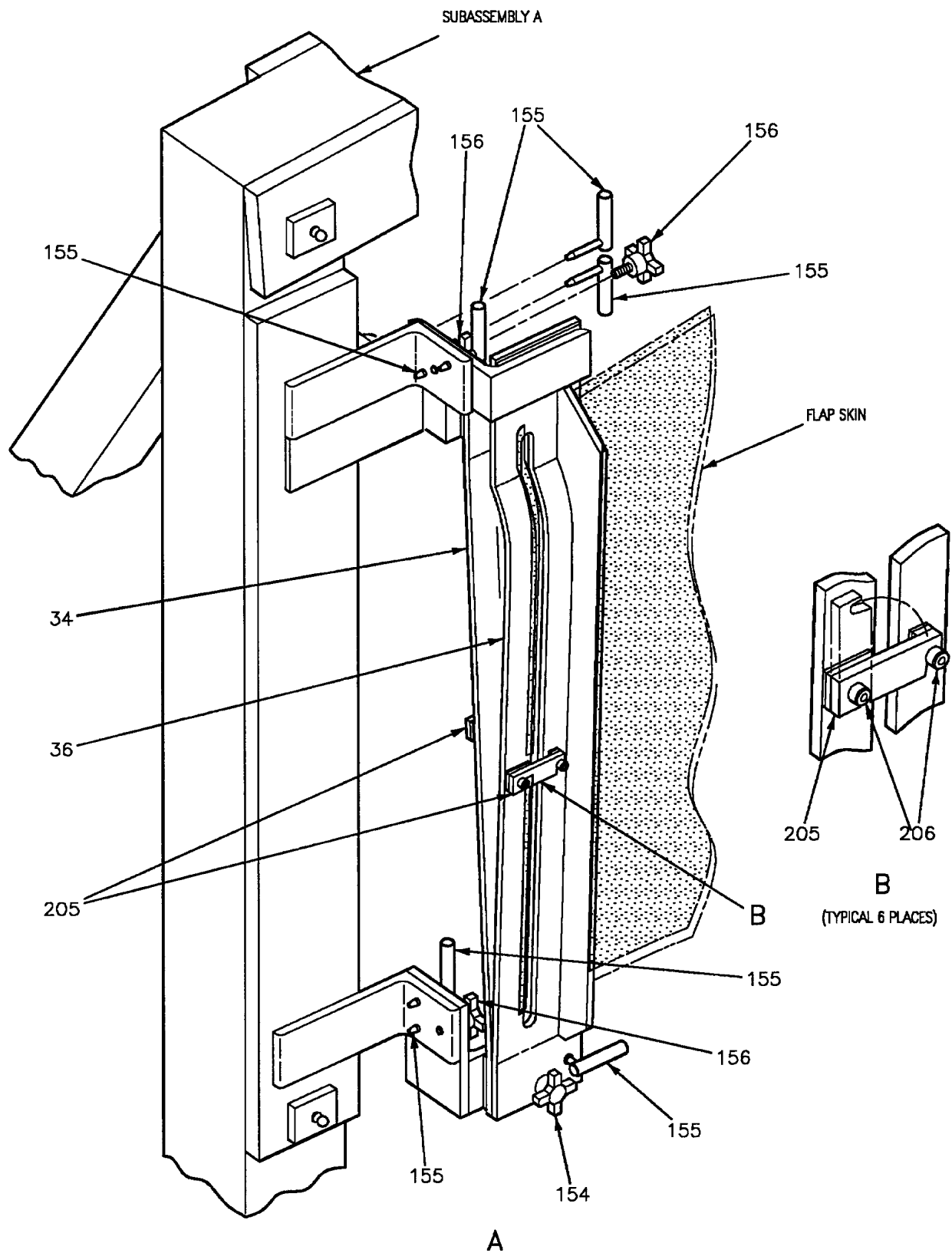


Figure 3. Trimming Upper and Lower Skins (Sheet 2)

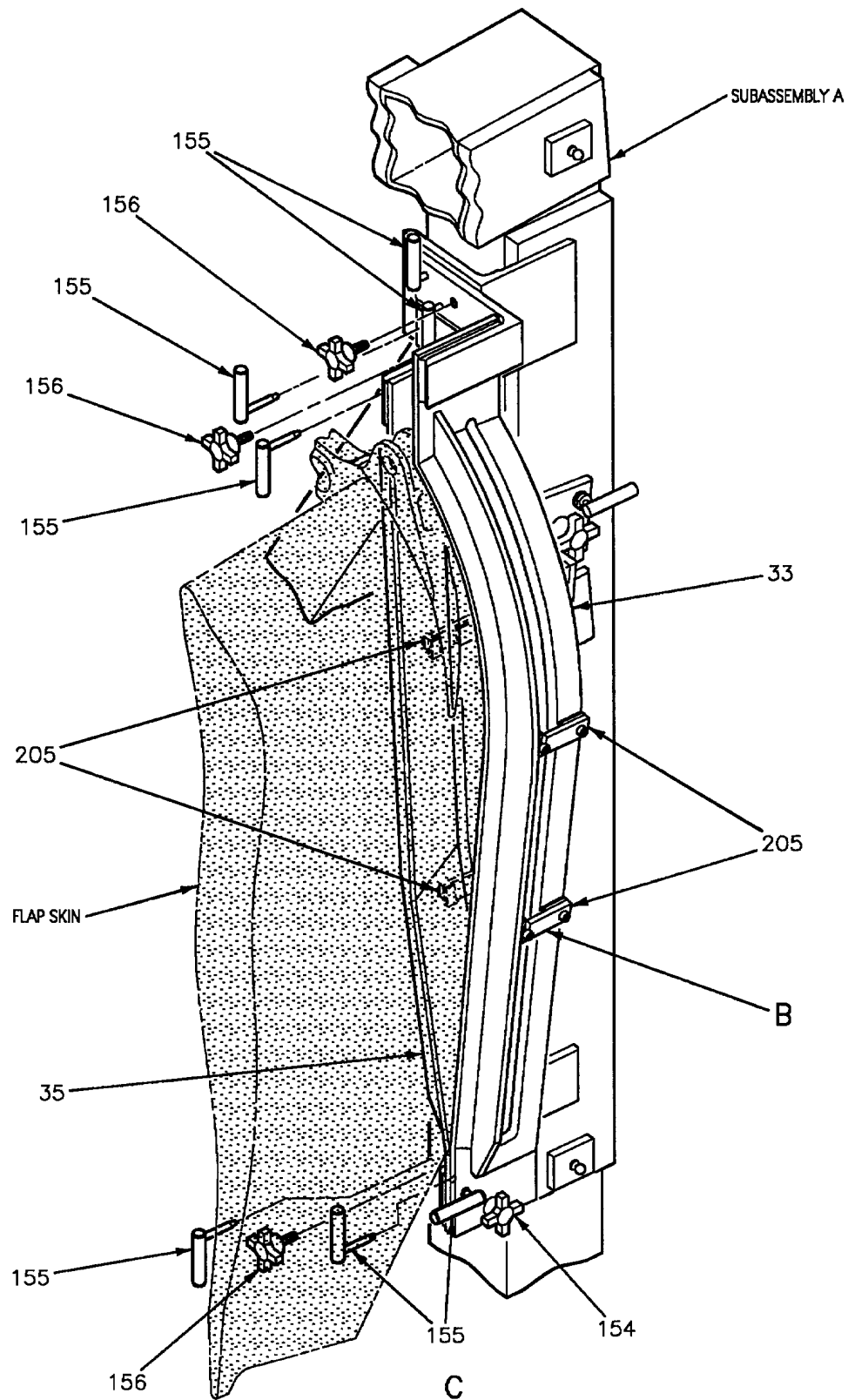


Figure 3. Trimming Upper and Lower Skins (Sheet 3)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
33, 35	Trim Boards	Guides router for trimming upper and lower skins at XW44.140.
34, 36	Trim Boards	Guides router for trimming upper and lower skins at XW152.750.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
154	Hand Knob	Secures details 33 and 34 to subassembly A.
155	L-Pin	Locates and attaches details 33, 34, 35, and 36 to subassembly A
156	Hand Knob	Secures details 33, 34, 35, and 36 to subassembly A.
205	Trim Board Link	Swings and locks into position to maintain accurate trim line.
206	Socket Head Shoulder Screw	Secures detail 205 to details 33, 34, 35, and 36.
238, 239, 240, 241	Locator	Locates upper mold line of flap.
272	Locator	Locates details for installing flap.

Figure 3. Trimming Upper and Lower Skins (Sheet 4)

6. INSTALLATION OF ROLLER SUPPORTS. See figure 4.

## Support Equipment Required

None

## Materials Required

None

### 7. Inboard Roller Support, 74A180686.

a. Rotate locator (detail 192) into position and install L-pins (detail 115) and hand knob (detail 146), view A.

b. Locate roller support, 74A180686, in flap structure and insert pin (detail 198) through locator (detail 192) and roller support, view A.

c. Insert pin (detail 170) half way through locator (detail 192) so both flanges of roller support will contact pin (detail 170) when rotated into place.

d. Clamp roller support against outboard surface of locator (detail 192).

e. To remove locator (detail 192), remove pins (details 170 and 198), hand knob (detail 146), L-pins (detail 115) and slide locator (detail 192) away from roller support and rotate clear of support.

### 8. Outboard Roller Support, 74A180687.

a. Rotate locator (detail 193) into position and install L-pins (detail 115) and hand knob (detail 146), view B.

b. Locate roller support, 74A180687, in flap structure and insert pin (detail 248) through locator (detail 193) and roller support, view B.

c. Insert pin (detail 170) half way through locator (detail 193) so both flanges of roller support will contact pin (detail 170) when rotated into place.

d. Insert thickness gage (detail 297) between locator (detail 193) and inboard flange of roller support, and clamp in place, view B.

e. To remove locator (detail 193), remove pins (details 170 and 198), hand knob (detail 146), L-pins (detail 115), and slide locator (detail 193) away from roller support and rotate clear of support.



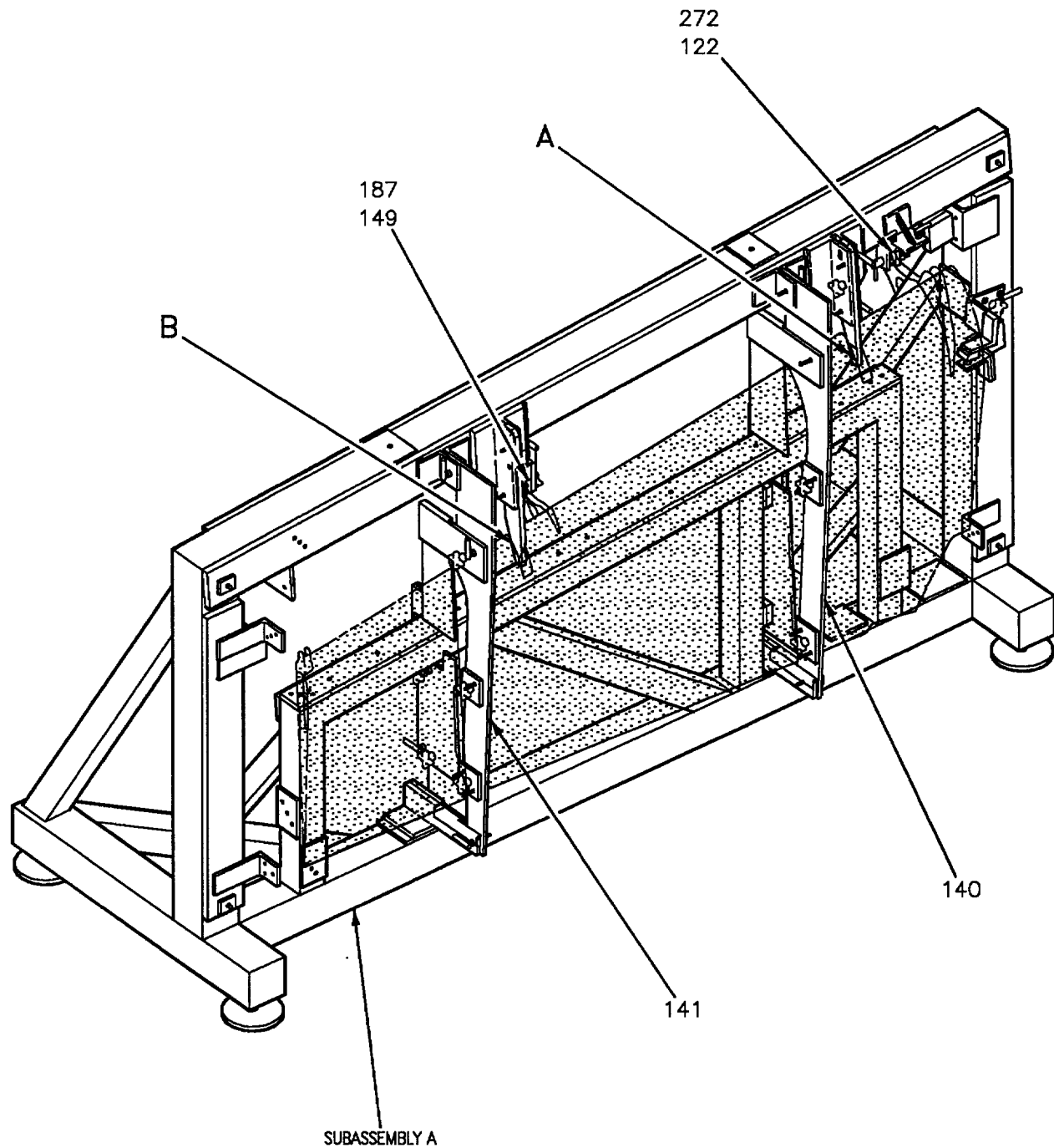


Figure 4. Roller Supports, 74A180686 and 74A180687 (Sheet 1)

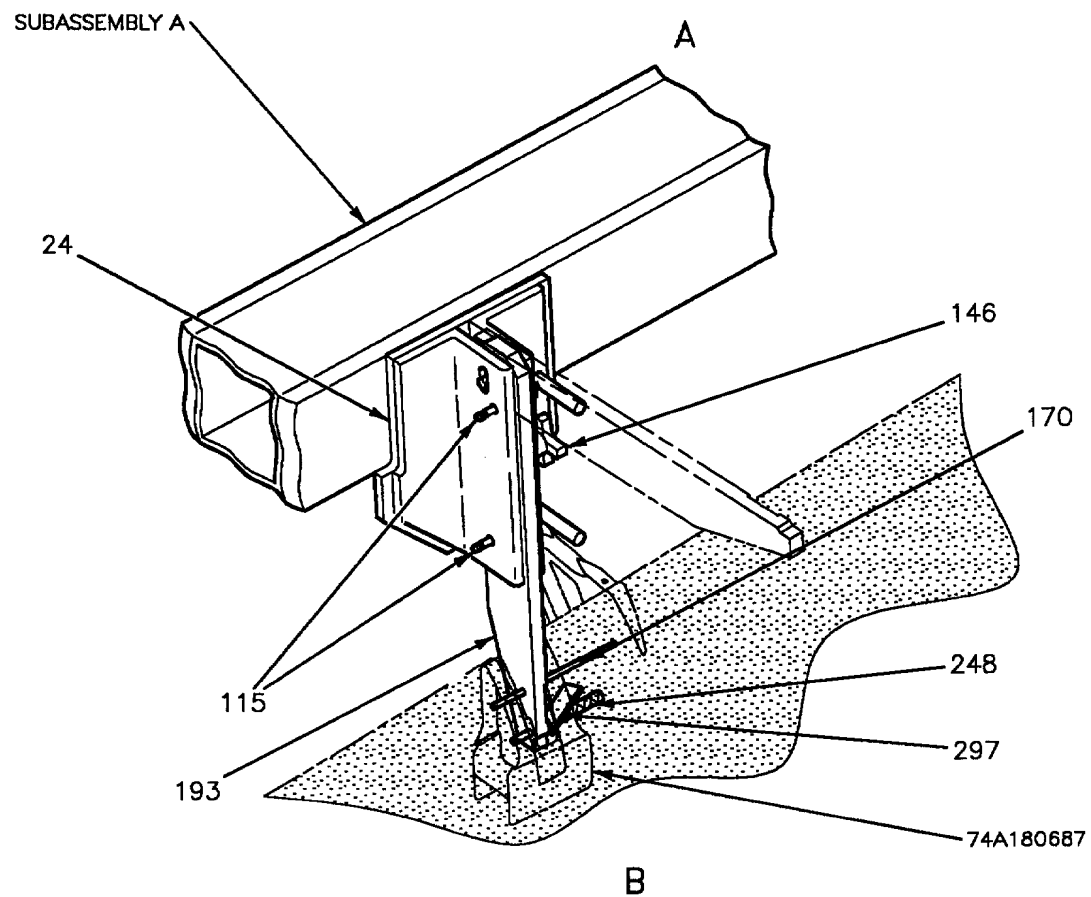
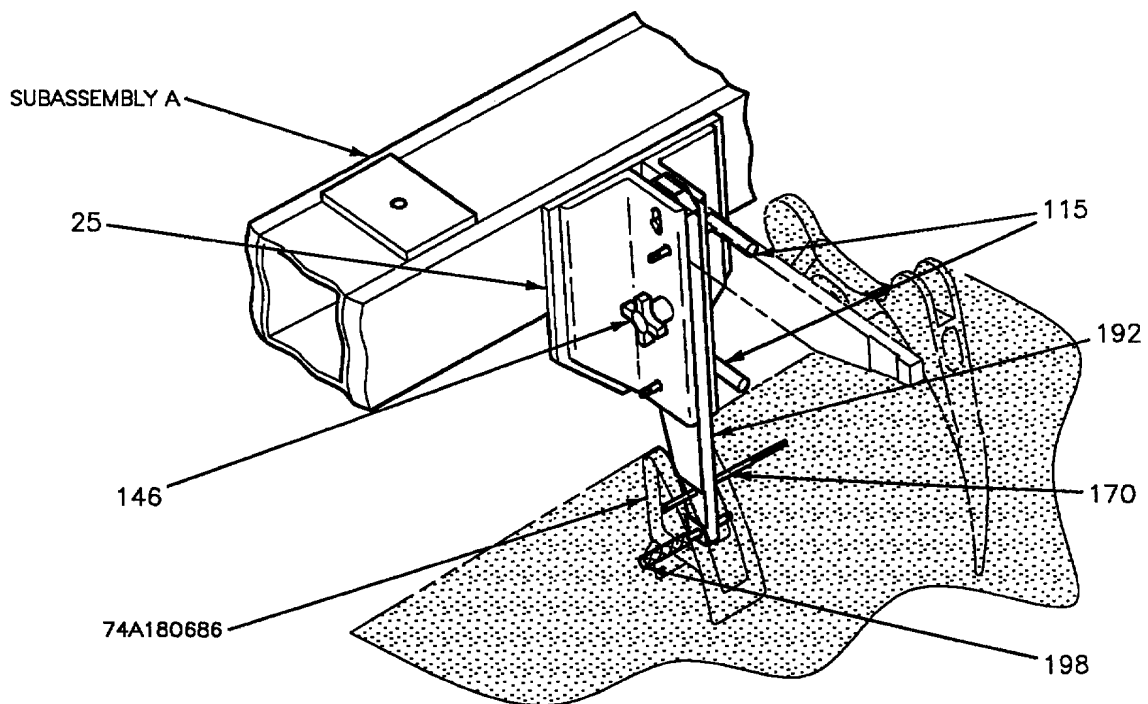


Figure 4. Roller Supports, 74A180686 and 74A180687 (Sheet 2)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
24	Support	Supports detail 193.
25	Support	Supports detail 192.
115	L-Pin	Locates and attaches details 192 and 193 to details 25 and 24, respectively.
122	Locator	Locates details for installing flap.
140, 141	Contour	Locates upper mold line.
146	Hand Knob	Secure details 192 and 193 to details 25 and 24, respectively.
149, 187	Locator	Locates details for installing flap.
170	Pin	Locate and attaches roller supports to details 192 and 193.
192	Locator	Locates roller support, 74A180686.
193	Locator	Locates roller support, 74A180687.
198	Pin	Locates and attaches roller support, 74A180686 to detail 192.
248	Pin	Locates and attaches roller support, 74A180687 to detail 193.
272	Locator	Locates details for installing flap.
297	Thickness Gage	Locates roller support to inboard/outboard position.

Figure 4. Roller Supports, 74A180686 and 74A180687 (Sheet 3)

9. INSTALLATION OF CLOSURE RIBS. See figure 5.

## Support Equipment

None

## Materials Required

None

### 10. Inboard Closure Rib, 74A180775.

a. Rotate locators (details 150, 151, and 152) into position and install L-pins (detail 115) and hand knob (detail 146), view B.

b. Locate rib against outboard surface of locator (detail 152) and clamp in place.

### 11. Outboard Closure Rib, 74A180748.

a. Attach support (detail 39) to angle (detail 128) using L-pins (detail A).

b. Attach locator (detail 204) to support (detail 39) using L-pins (detail 182) and hand knob (detail 220), view A.

c. Locate closure rib, 74A180748, in position and insert pin (detail 197) through locator (detail 204) and closure rib, view A.

d. Tighten thumbscrew (detail 167) to hold closure rib against locator (detail 204), view A.

e. Clamp rib against upper skin.

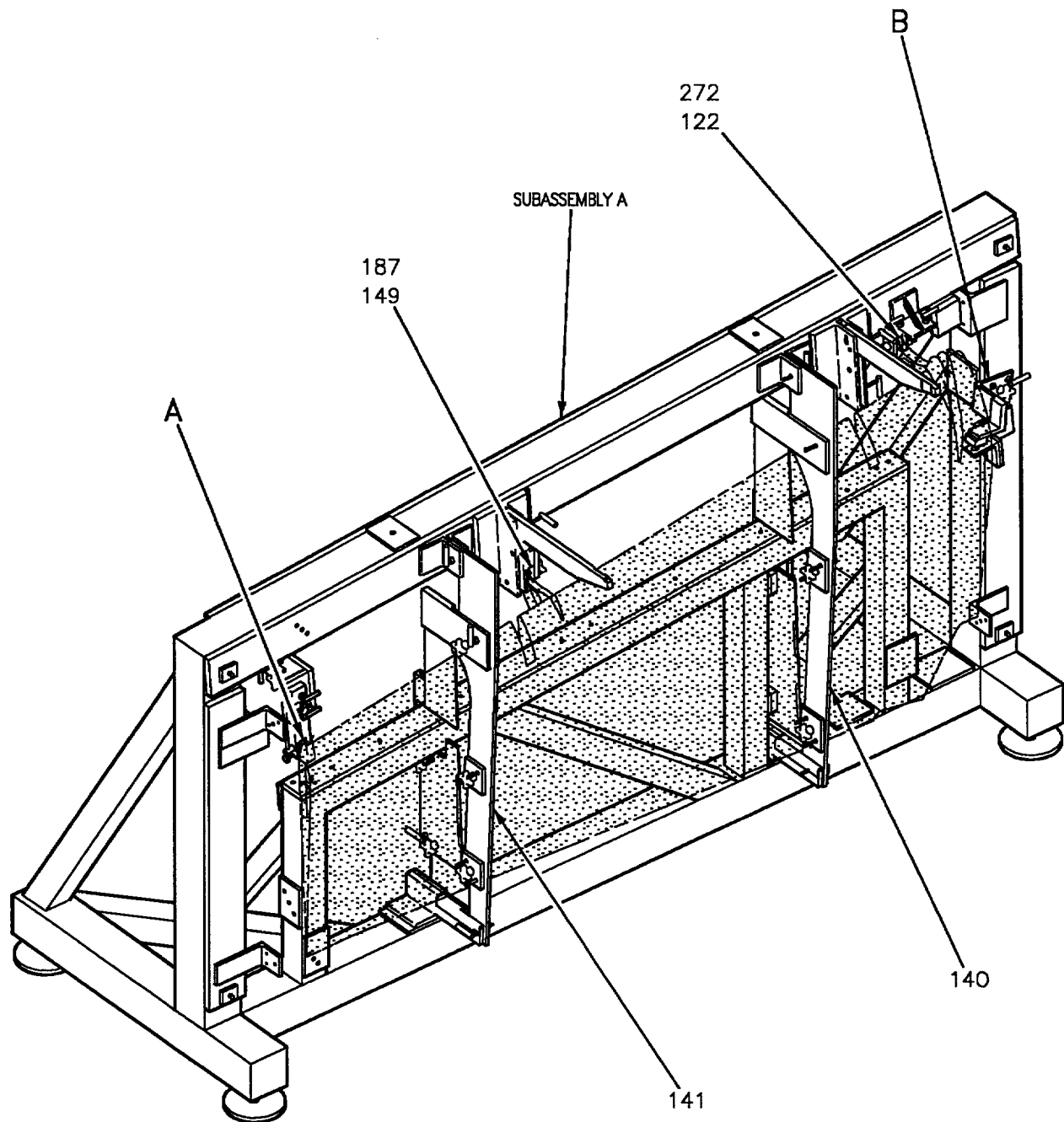


Figure 5. Closure Ribs, 74A180748 and 74A180755 (Sheet 1)

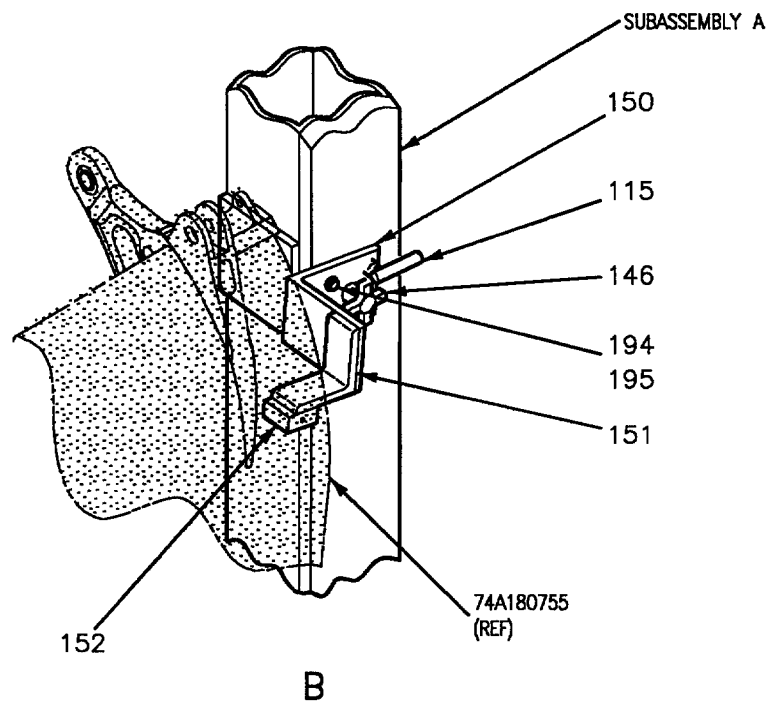
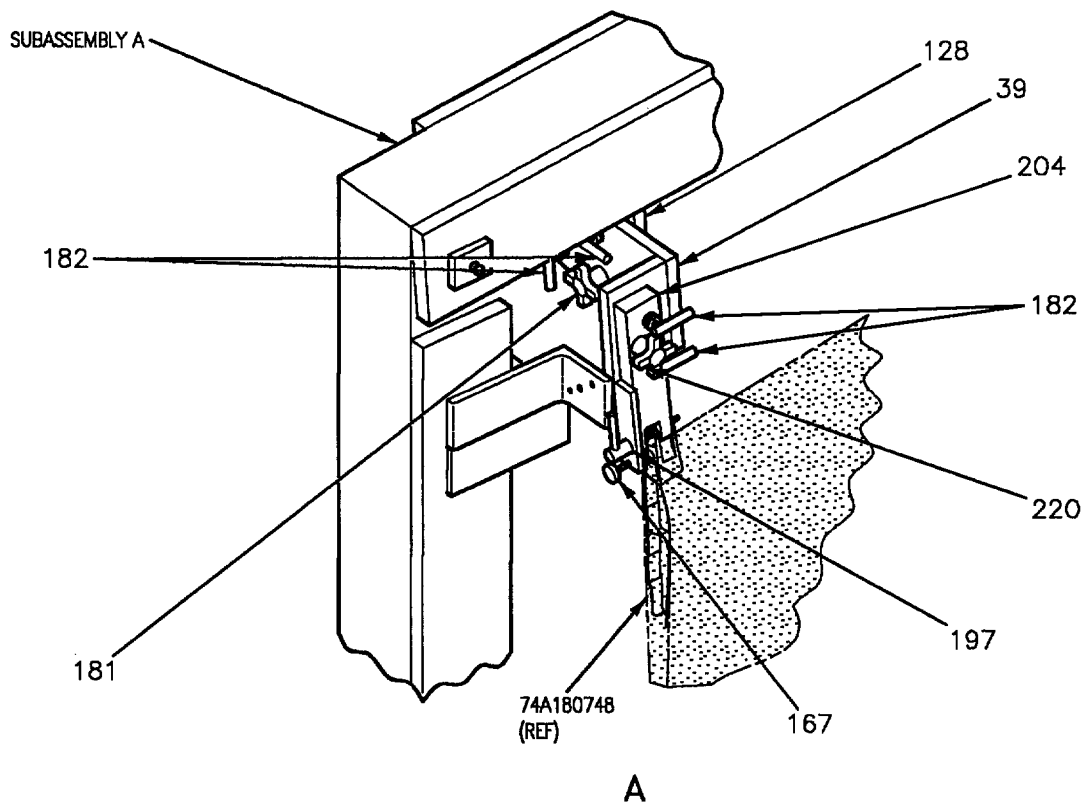


Figure 5. Closure Ribs, 74A180748 and 74A180755 (Sheet 2)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
39	Support	Supports detail 204.
115	L-Pin	Locates and attaches detail 150 to subassembly A.
122	Locator	Locates details for installing nap.
128	Angle	Attaches details 39 and 204 to subassembly A.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures detail 150 to subassembly A.
149, 187	Locator	Locates details for installing flap.
150, 151, 152	Locator	Locates closure rib, 74A180755.
167	Thumbscrew	Secures closure rib, 74A180748 to detail 204.
181	Hand Knob	Secures detail 39 to detail 128.
182	L-Pin	Locates and attaches details 39, 128, and 204.
194, 195	Pivot Pin	Allows details 150, 151, and 152 to swing away from rib.
197	Pin	Locates closure rib, 74A180748 to detail 204.
204	Locator	Locates closure rib, 74A180748.
220	Hand Knob	Secures detail 204 to detail 39.
272	Locator	Locates details for installing flap.

Figure 5. Closure Ribs, 74A180748 and 74A180755 (Sheet 3)

12. INSTALLATION OF OUTBOARD HINGE RIB,  
74A180691. See figure 6.

## Support Equipment Required

None

## Materials Required

None

a. Attach angle (detail 162), support (detail 111), and locator (detail 163) to subassembly A using L-pins (detail 115) and hand knob (detail 146), view A.

b. Locate hinge rib against locator (detail 163).

c. Insert pin (detail 185) through locator (detail 149), hinge rib, and locator (detail 187), view B.

d. Install hand knob (detail 190) on pin (detail 185) snugging the hinge bearing against inboard surface of locator (detail 187), view B.



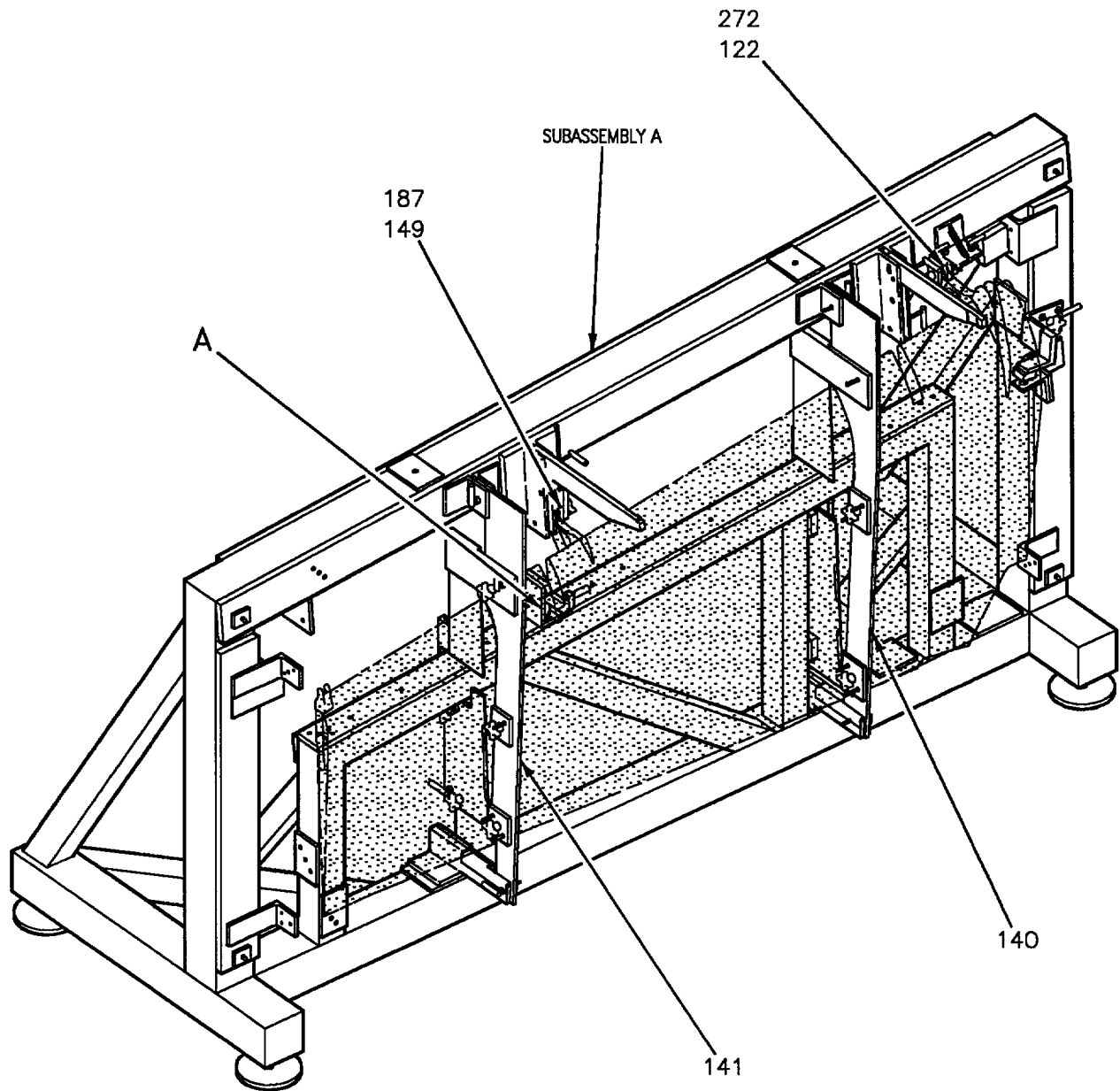


Figure 6. Outboard Hinge Rib, 74A180691 (Sheet 1)

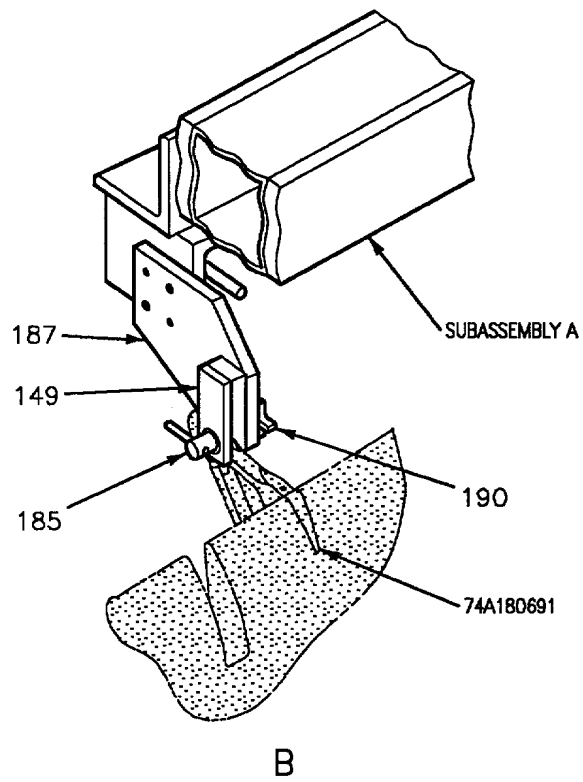
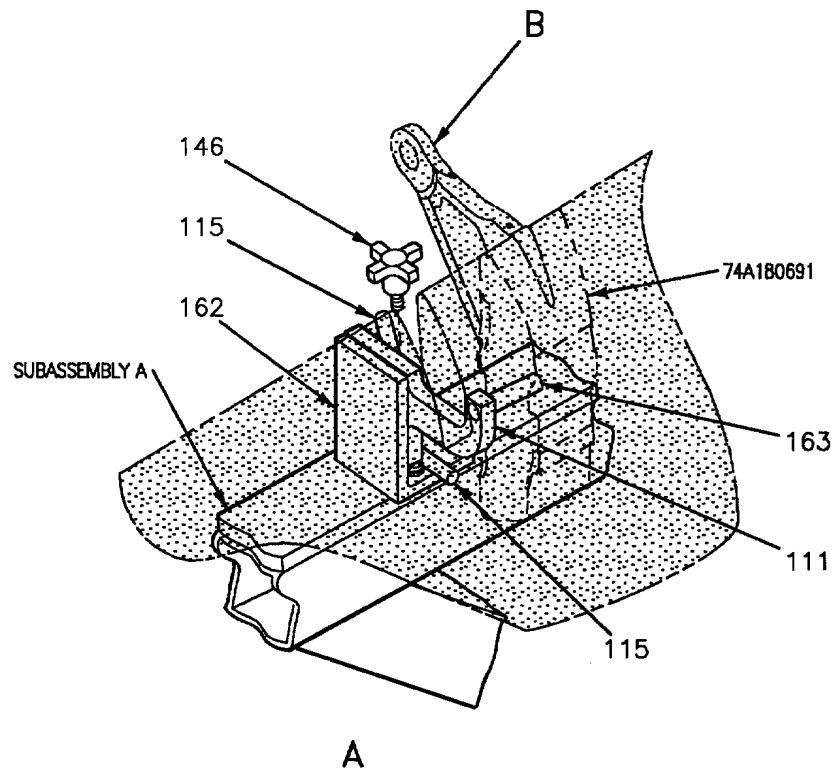


Figure 6. Outboard Hinge Rib, 74A180691 (Sheet 2)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
111	Support	Supports detail 163 for location of rib.
115	L-Pin	Locates and attaches detail 162 to subassembly A.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures detail 162 to subassembly A.
149, 187	Locator	Locates details for installing flap.
162	Angle	Attaches detail 111 to subassembly A.
163	Locator	Locates rib, 74A180691, to inboard/outboard position.
185	Pin	Locates outboard flap hinge.
190	Hand Knob	Secures detail 185 for locating flap.
272	Locator	Locates details for installing flap.

Figure 6. Outboard Hinge Rib, 74A180691 (Sheet 3)

13. INSTALLATION OF RIBS, 74A180682 AND 74A180683. See figure 7.

## Support Equipment Required

None

## Materials Required

None

a. Attach support plate (detail 227) to subassembly A using L-pins (detail 212) and hand knobs (detail 220).

b. Attach angle (detail 224) and locator (detail 228) to subassembly A using L-pins (detail 212) and hand knob (detail 146), view A.

c. Locate rib, 74A180682, against inboard surface of locator (detail 228), and rib, 74A180683, against outboard surface of locator (detail 228), view A.

d. Clamp both ribs in place.

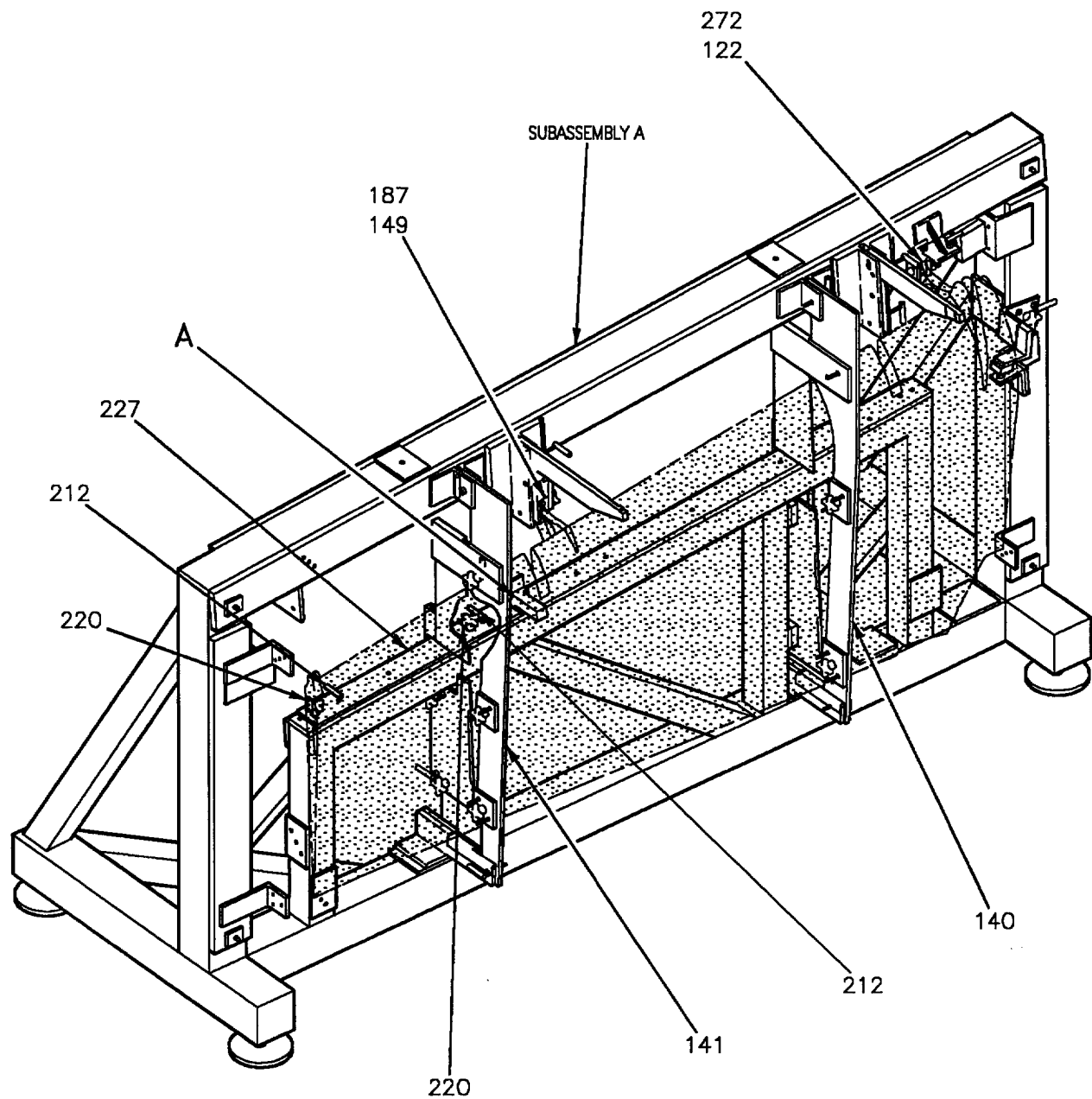


Figure 7. Ribs, 74A180682 and 74A180683 (Sheet 1)

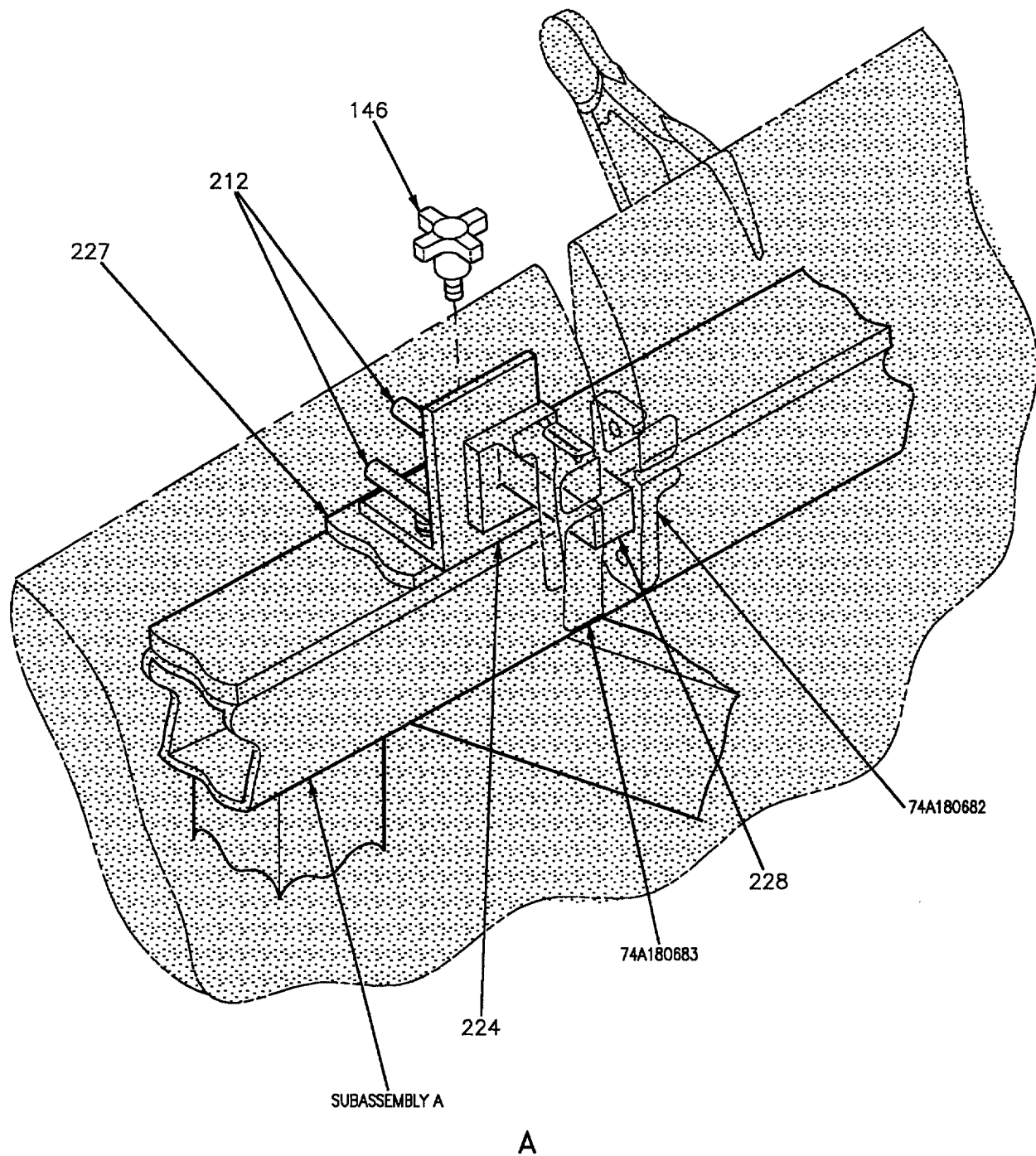


Figure 7. Ribs, 74A180682 and 74A180683 (Sheet 2)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
122, 272	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures detail 224 to subassembly A.
149, 187	Locator	Locates details for installing flap.
212	L-Pin	Locates and attaches detail 224 to subassembly A.
220	Hand Knob	Secures detail 227 to subassembly A.
224	Angle	Attaches detail 228 to subassembly A.
227	Support Plate	Locates supports for rib locators.
228	Locator	Locates ribs, 74A180682 and 74A180683.

Figure 7. Ribs, 74A180682 and 74A180683 (Sheet 3)

14. INSTALLATION OF RIBS, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, AND 74A180749. See figure 8.

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
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Cleco Fastener	-
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a. Attach support plate (detail 222) to subassembly A using L-pins (detail 212) and hand knobs (detail 220), view A.

15. Ribs, 74A180680, 74A180681, and 74A180743.

a. Attach locator (detail 22) to support (detail 223) using L-pins (detail 212) and hand knobs (detail 146), view B.

b. Locate rib, 74A180743, next to flap structure at aft end and attach to locator (detail 22) with fastener at forward end.

c. Locate ribs, 74A180680 and 74A180681 next to locator (detail 221) and clamp in place, view C.

16. Ribs, 74A180742, and 74A180745.

a. Attach locators (details 21 and 23) to supports (detail 225) using L-pins (detail 212) and hand knobs (detail 146), views D and E.

b. Locate rib, 74A180742, next to flap structure at aft end and attach to locator (detail 23) with fastener at forward end, view D.

c. Locate rib, 74A180745, next to flap structure at aft end and attach to locator (detail 21) with fastener at forward end, view E.

17. Ribs, 74A180747, and 74A180749.

a. Attach locators (details 18 and 20) to supports (detail 225) using L-pins (detail 212) and hand knob (detail 146), views F and G.

b. Locate rib, 74A180747, next to flap structure at aft end and attach to locator (detail 20) with fastener at forward end, view F.

c. Locate rib, 74A180749, next to flap structure at aft end and attach to locator (detail 18) with fastener at forward end, view G.

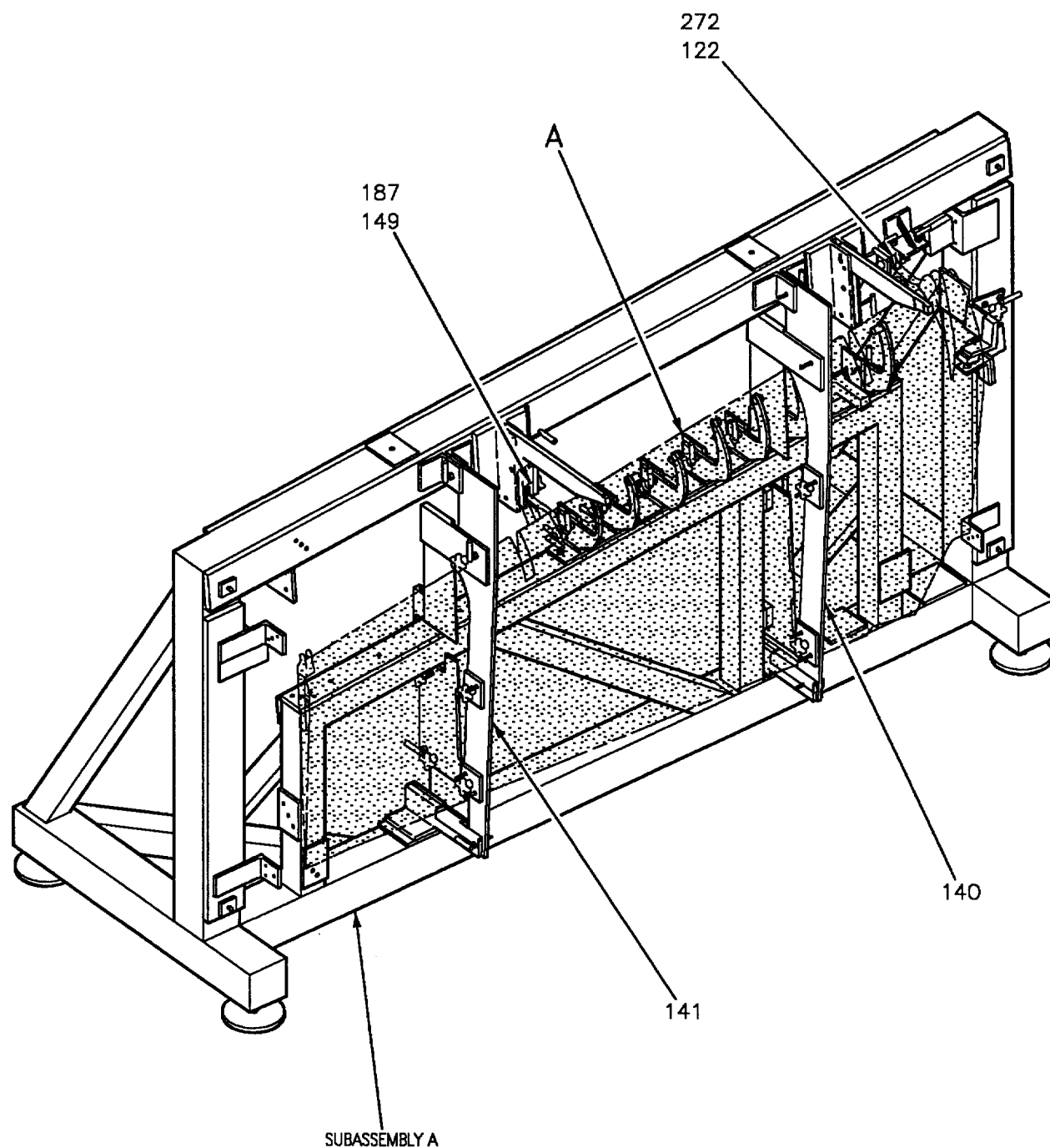
18. Ribs, 74A180730, and 74A180731.

a. Attach locators (details 17 and 19) to supports (detail 225) using L-pins (detail 212) and hand knob (detail 146), views H and J.

b. Locate rib, 74A180730, next to flap structure at aft end and attach to locator (detail 19) with fastener at forward end, view H.

c. Locate rib, 74A180731, next to flap structure at aft end and attach to locator (detail 17) with fastener at forward end, view J.





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Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 1)

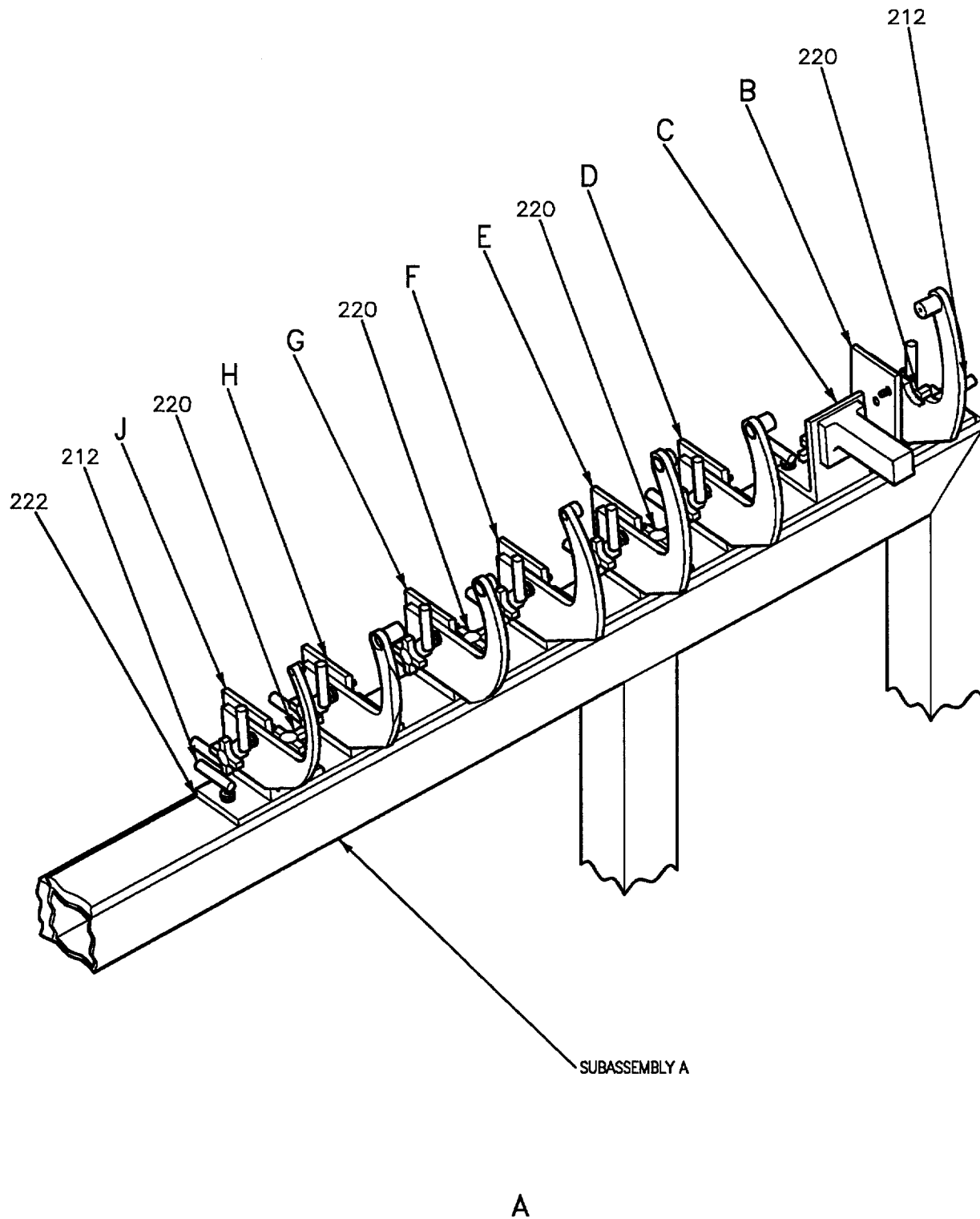


Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 2)

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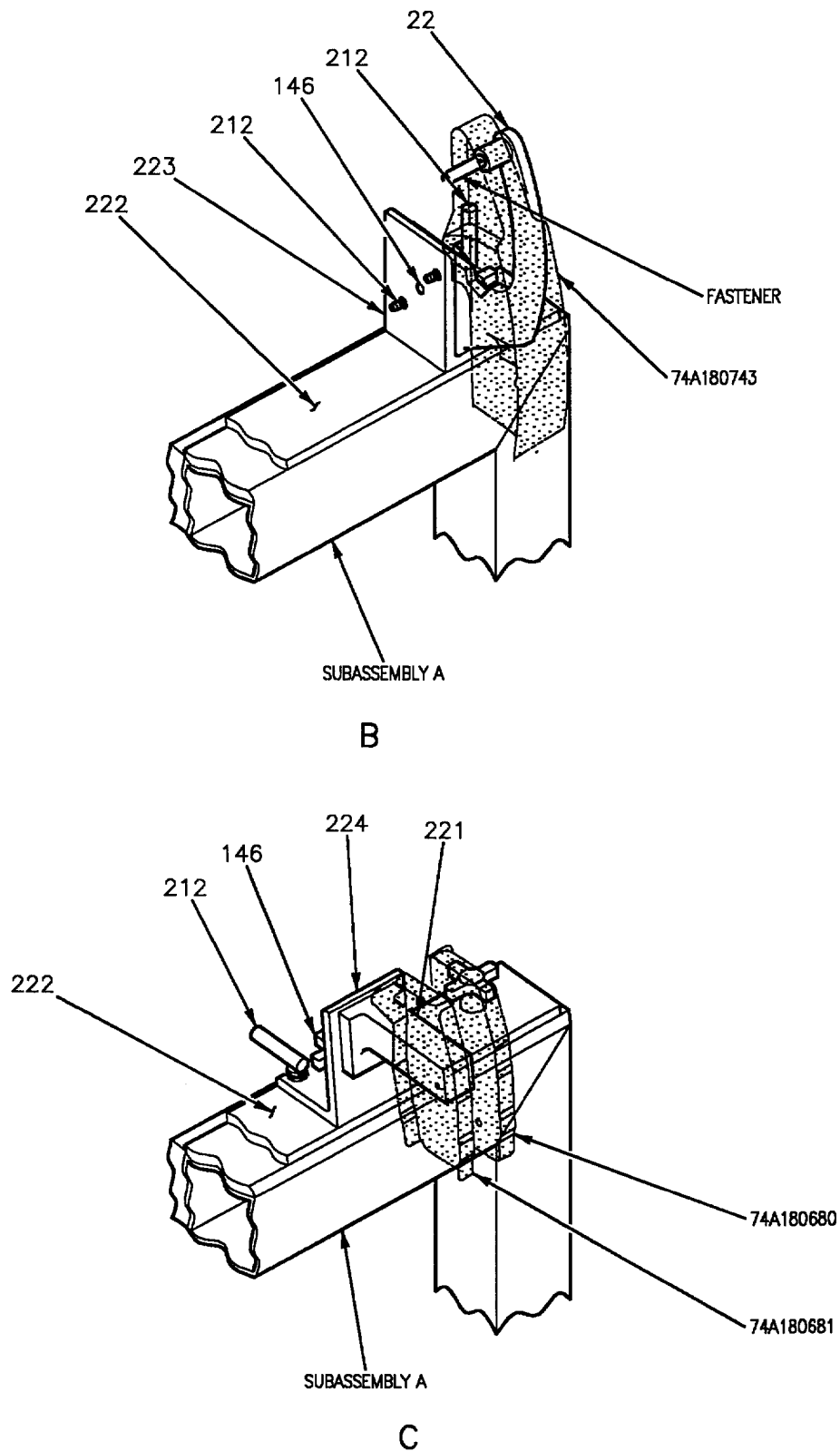


Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 3)

08050803

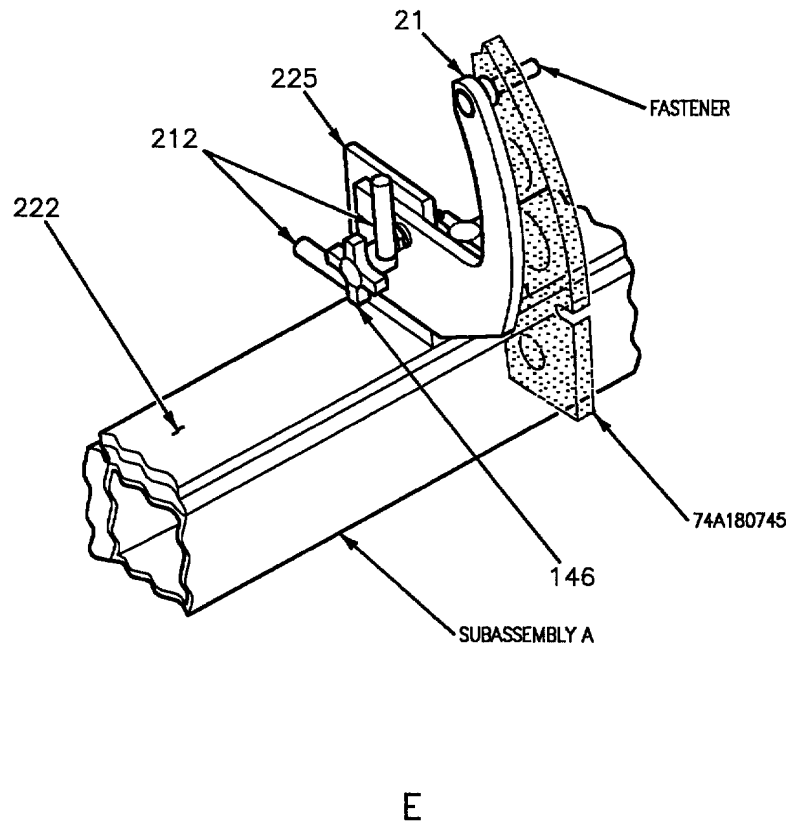
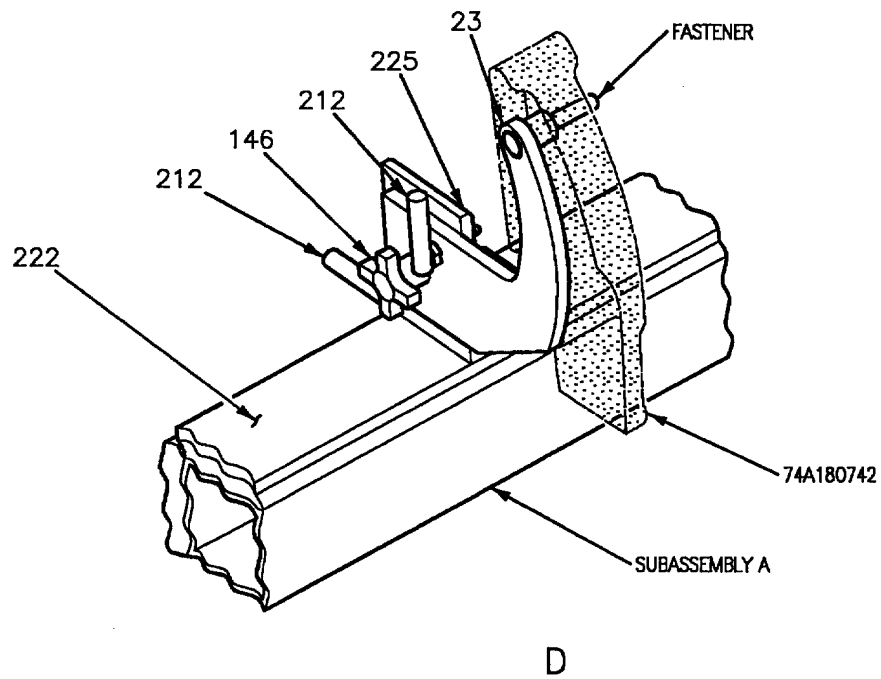


Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 4)

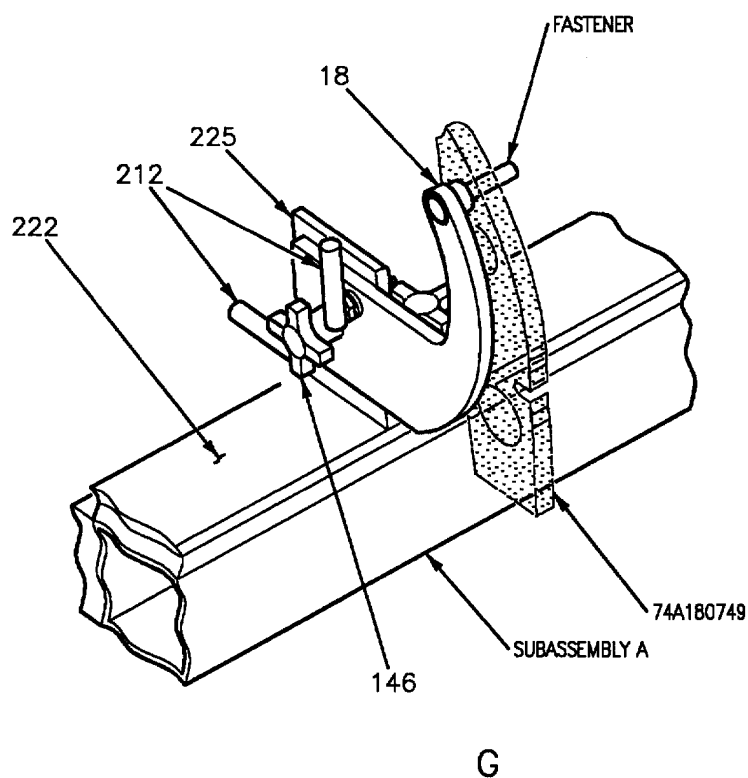
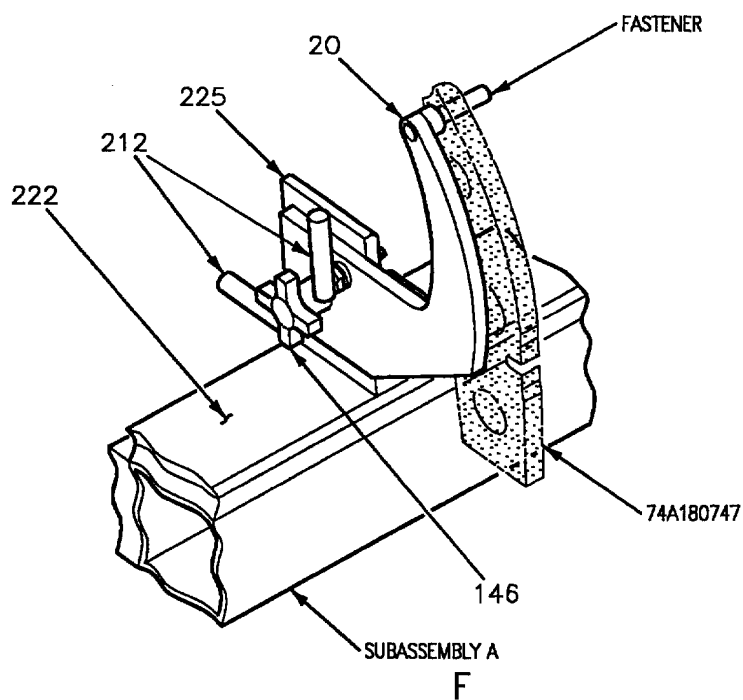


Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 5)

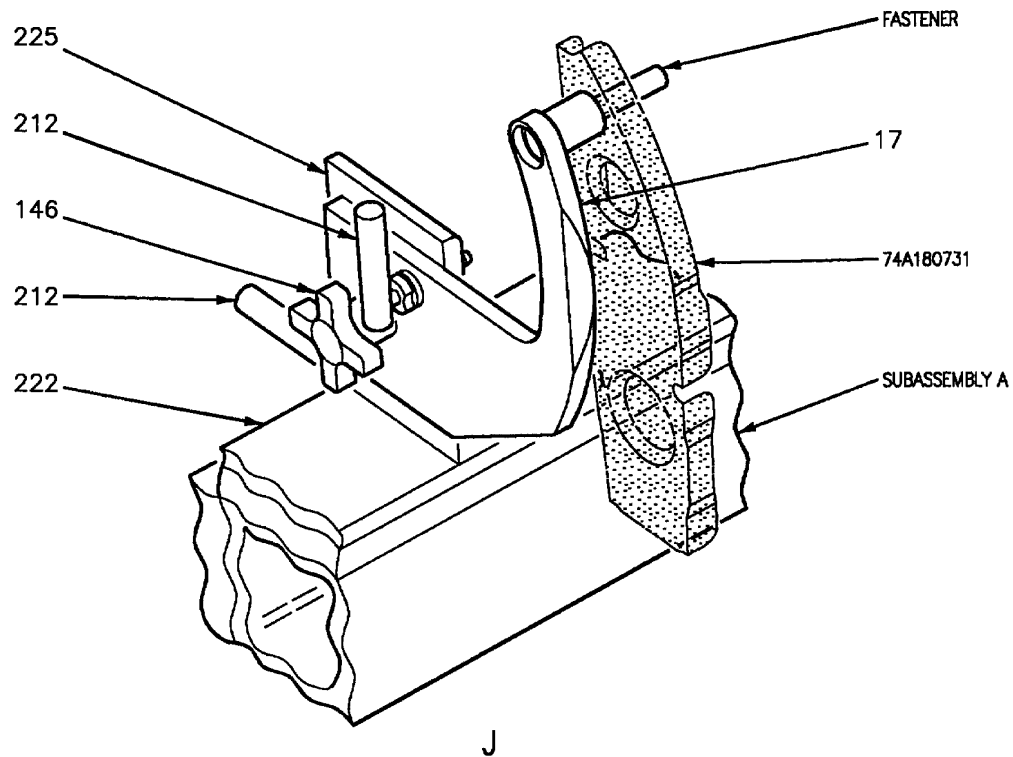
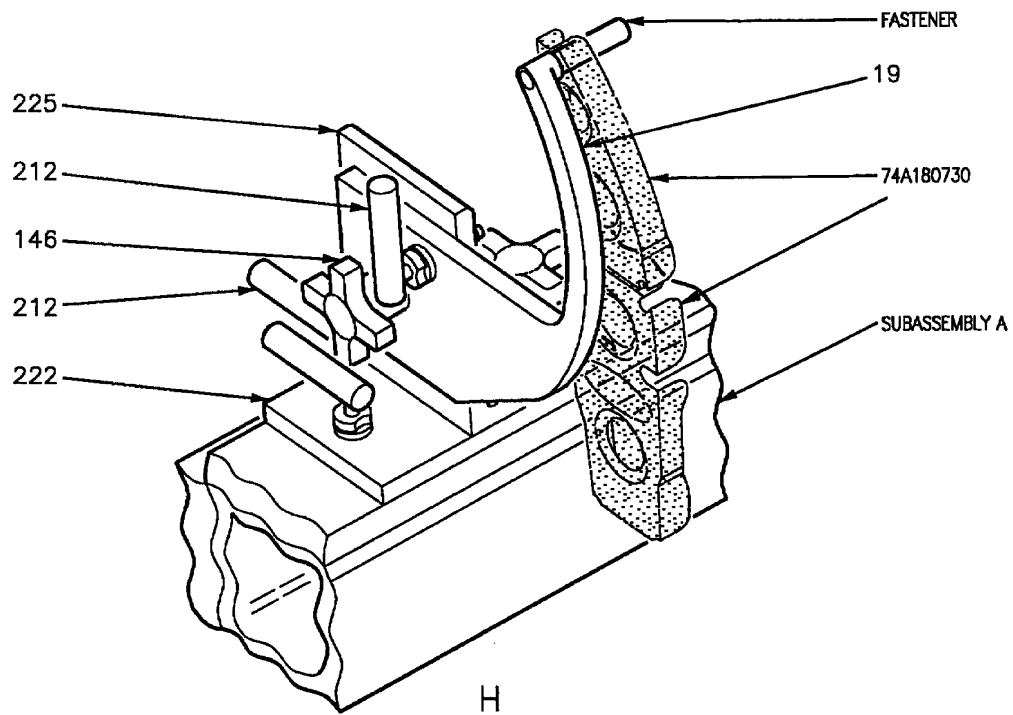


Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 6)

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Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
17	Locator	Locates rib, 74A180731.
18	Locator	Locates rib, 74A180749.
19	Locator	Locates rib, 74A180730.
20	Locator	Locates rib, 74A180747.
21	Locator	Locates rib, 74A180745.
22	Locator	Locates rib, 74A180743.
23	Locator	Locates rib, 74A180742.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures locators to supports.
149, 187	Locator	Locates details for installing flap.
212	L-Pin	Locates and attaches various details.
220	Hand Knob	Secures detail 222 to subassembly A.
221	Locator	Locates ribs, 74A180680 and 74A180681.
222	Support Plate	Locates supports for rib locators.
223	Support	Supports detail 22.
224	Support	Supports detail 221.
225	Support	Supports various rib locators.
272	Locator	Locates details for installing flap.

Figure 8. Ribs, 74A180680, 74A180681, 74A180730, 74A180731, 74A180742, 74A180743, 74A180745, 74A180747, and 74A180749 (Sheet 7)

19. INSTALLATION OF RIBS, 74A180736, 74A180737, 74A180739, AND 74A180744. See figure 9.

Support Equipment Required

None

Materials Required

Nomenclature	Specification or Part Number
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Cleco Fastener	-
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a. Attach support plate (detail 227) to subassembly A using L-pins (detail 212) and hand knobs (detail 220), view A.

20. Ribs, 74A180736, and 74A180737.

a. Attach locators (details 13 and 16) to support (detail 225) using L-pins (detail 212) and hand knob (detail 146), views B and C.

b. Locate rib, 74A180736, next to flap structure at aft end and attach to locator (detail 13) with fastener at forward end, view B.

c. Locate ribs, 74A180737, next to flap structure at aft end and attach to locator (detail 16) with fastener at forward end, view C.

21. Ribs, 74A180739, and 74A180744.

a. Attach locator (detail 15) to support (detail 225) and locator (detail 14) to support (detail 226) using L-pins (detail 212) and hand knobs (detail 146), views D and E.

b. Locate rib, 74A180739, next to flap structure at aft end and attach to locator (detail 15) with fastener at forward end, view D.

c. Locate rib, 74A180744, next to flap structure at aft end and attach to locator (detail 14) with fastener at forward end, view E.



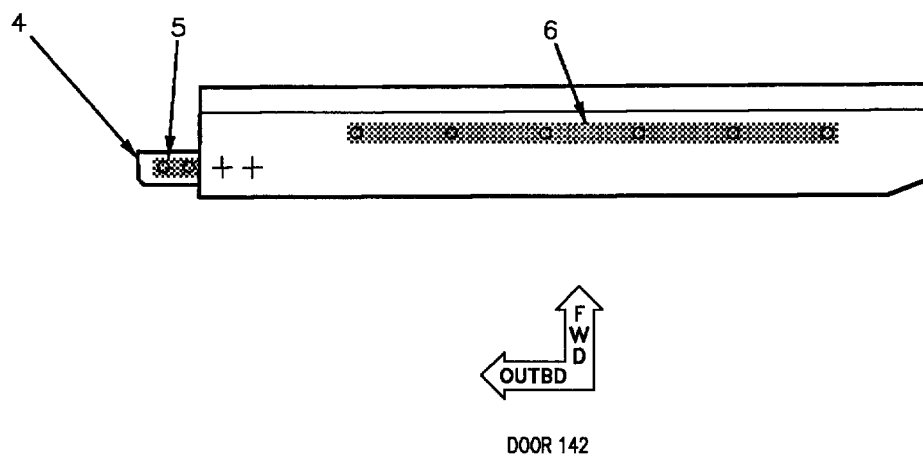
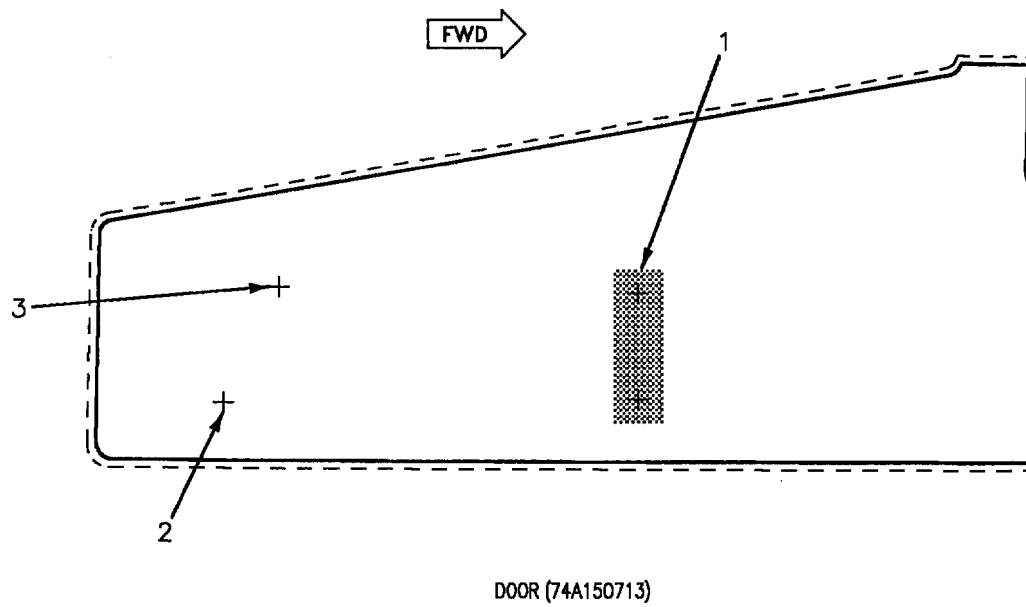
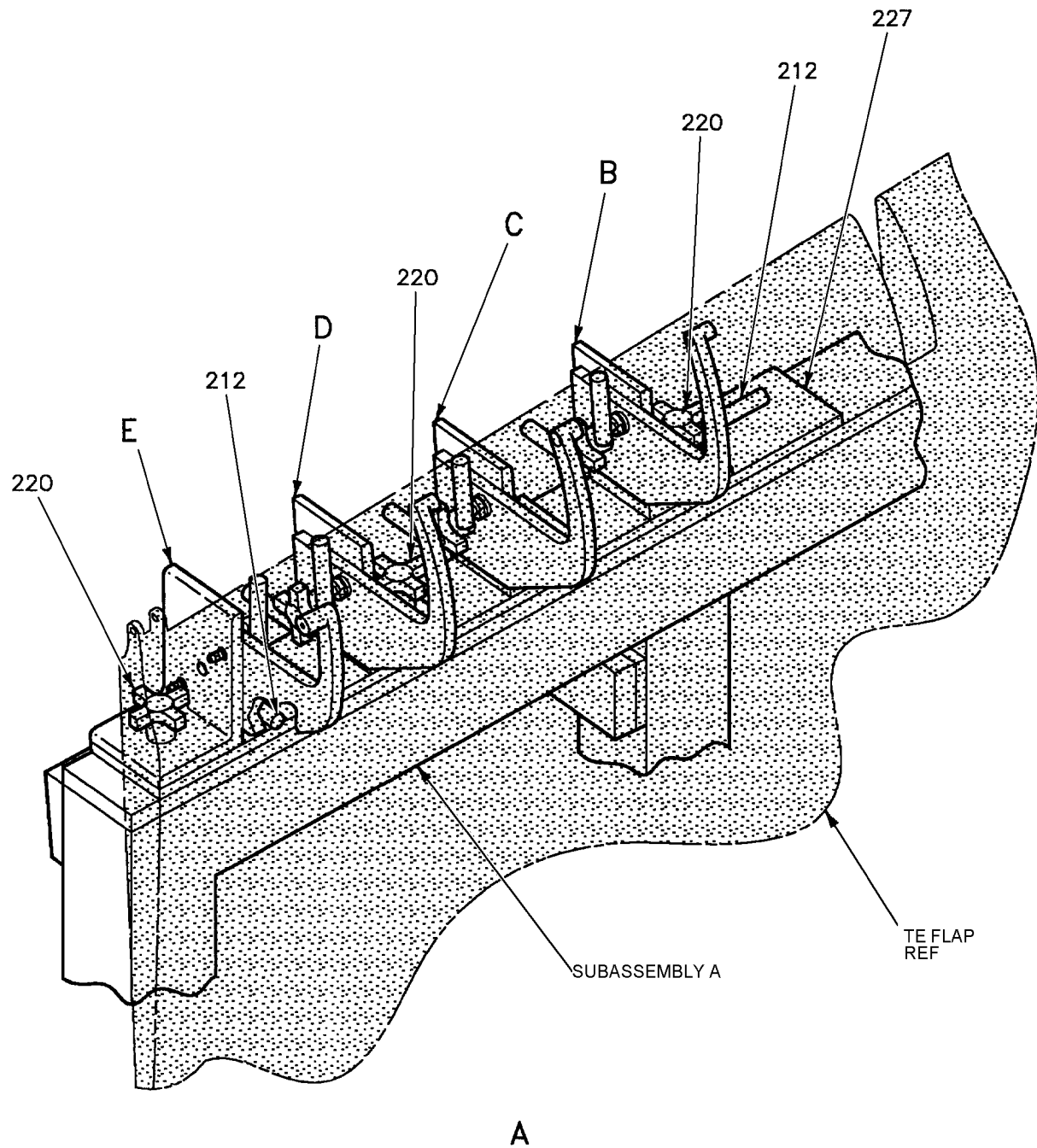


Figure 9. Ribs, 74A180736, 74A180737, 74A180739, and 74A180744 (Sheet 1)



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Figure 9. Ribs, 74A180736, 74A180737, 74A180739, and 74A180744 (Sheet 2)

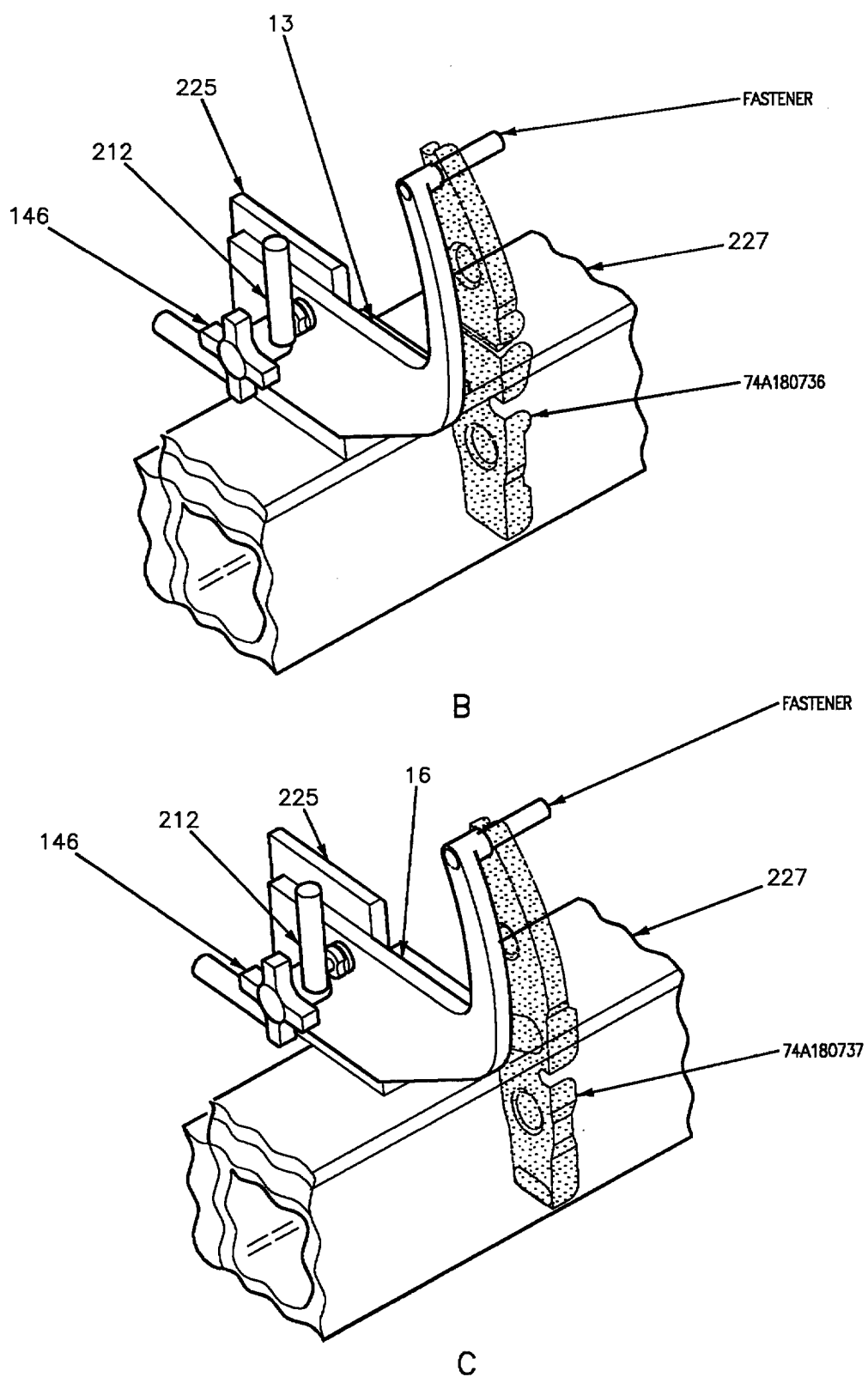


Figure 9. Ribs, 74A180736, 74A180737, 74A180739, and 74A180744 (Sheet 3)

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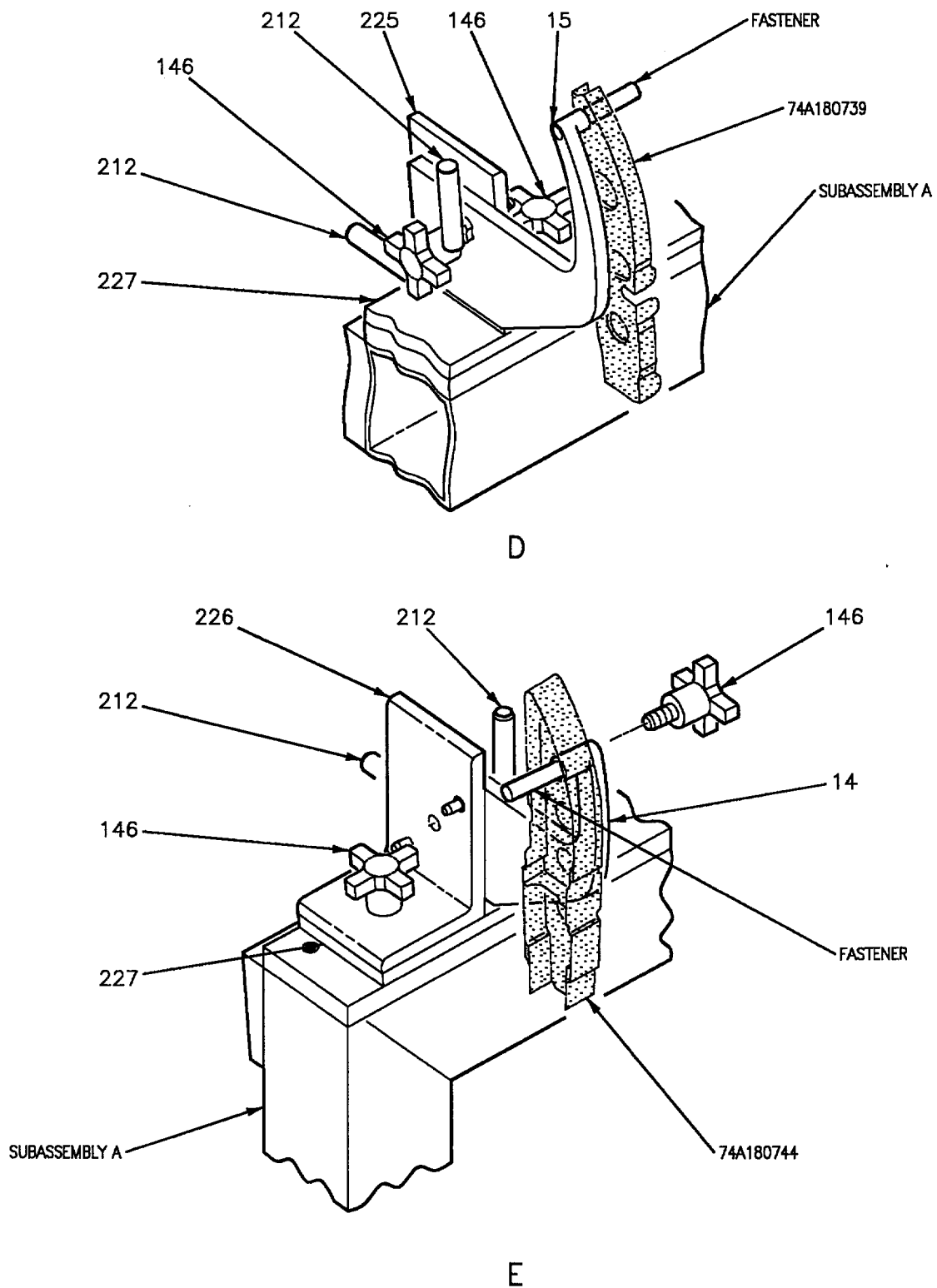


Figure 9. Ribs, 74A180736, 74A180737, 74A180739, and 74A180744 (Sheet 4)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
13	Locator	Locates rib, 74A180736.
14	Locator	Locates rib, 74A180744.
15	Locator	Locates rib, 74A180739.
16	Locator	Locates rib, 74A180737.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures locators to supports.
149, 187	Locator	Locates details for installing flap.
212	L-Pin	Locates and attaches various details.
220	Hand Knob	Secures detail 227 to subassembly A.
225	Support	Supports various locators.
226	Support	Supports detail 14.
227	Support Plate	Locates supports for rib locators.
272	Locator	Locates details for installing flap.

Figure 9. Ribs, 74A180736, 74A180737, 74A180739, and 74A180744 (Sheet 5)

22. INSTALLATION OF RIB, 74A180684, AND SUPPORT, 74A180746. See figure 10.

## Support Equipment Required

None

## Materials Required

None

23. Support, 74A180746.

a. Attach locator (detail 130) to angle assembly (details 250 and 253) using L-pins (detail 182) and hand knob (detail 181), view A.

b. Locate support with bushings installed on locator (detail 130) and insert L-pin (detail 132) through support and locator (detail 130), view A.

c. Attach plate (detail 129) to locator (detail 130) using hand knob (detail 133) to clamp support and bushing in place. Hold support against mating structure while tightening hand knob, view A.

24. Rib, 74A180684.

a. Attach angle (detail 119) to angle (detail 119) on subassembly A using L-pins (detail 182) and hand knob (detail 181), view B.

b. Attach locator (detail 191) to angle (detail 119) using L-pins (detail 182) and hand knobs (detail 181), view B.

c. Insert bushing (detail 136) into rib bushing and align with locator (detail 191), view B.

d. Insert pin (detail 135) through rib bushing, locator (detail 191), and bushing (detail 136), view B.

e. Install knurled nut (detail 172) on pin (detail 135) to clamp rib bushing against locator (detail 191), making sure pin (detail 135) bottoms out against slotted bushing (detail 134), view B.

f. Insert pin (detail 196) through locator (detail 122), rib bearing, and locator (detail 272), view B.

g. Install hand knob (detail 124) on pin (detail 196) snugging the hinge bearing against outboard surface of locator (detail 272), view B.

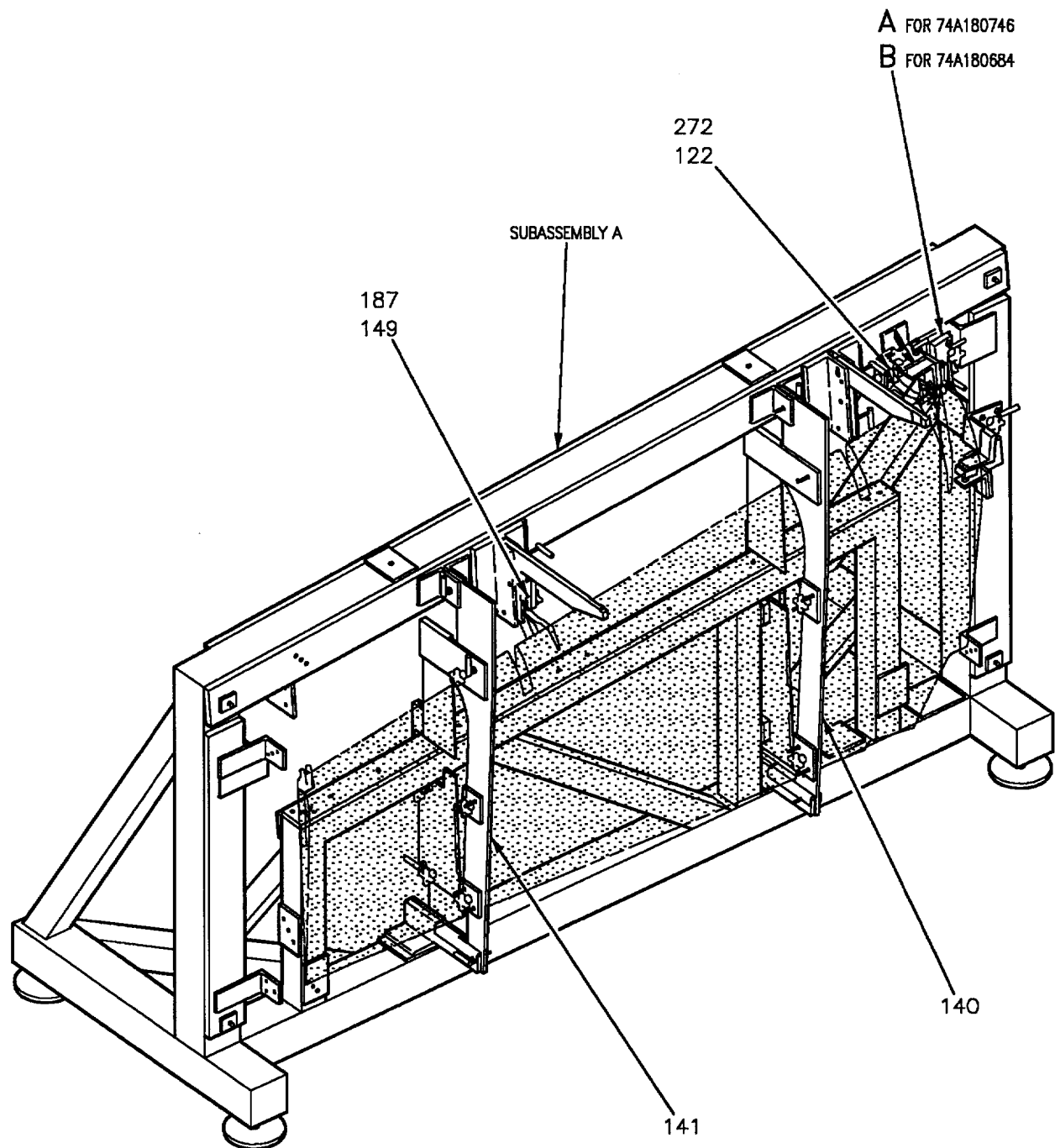


Figure 10. Rib, 74A180684 and Support, 74A180746 (Sheet 1)

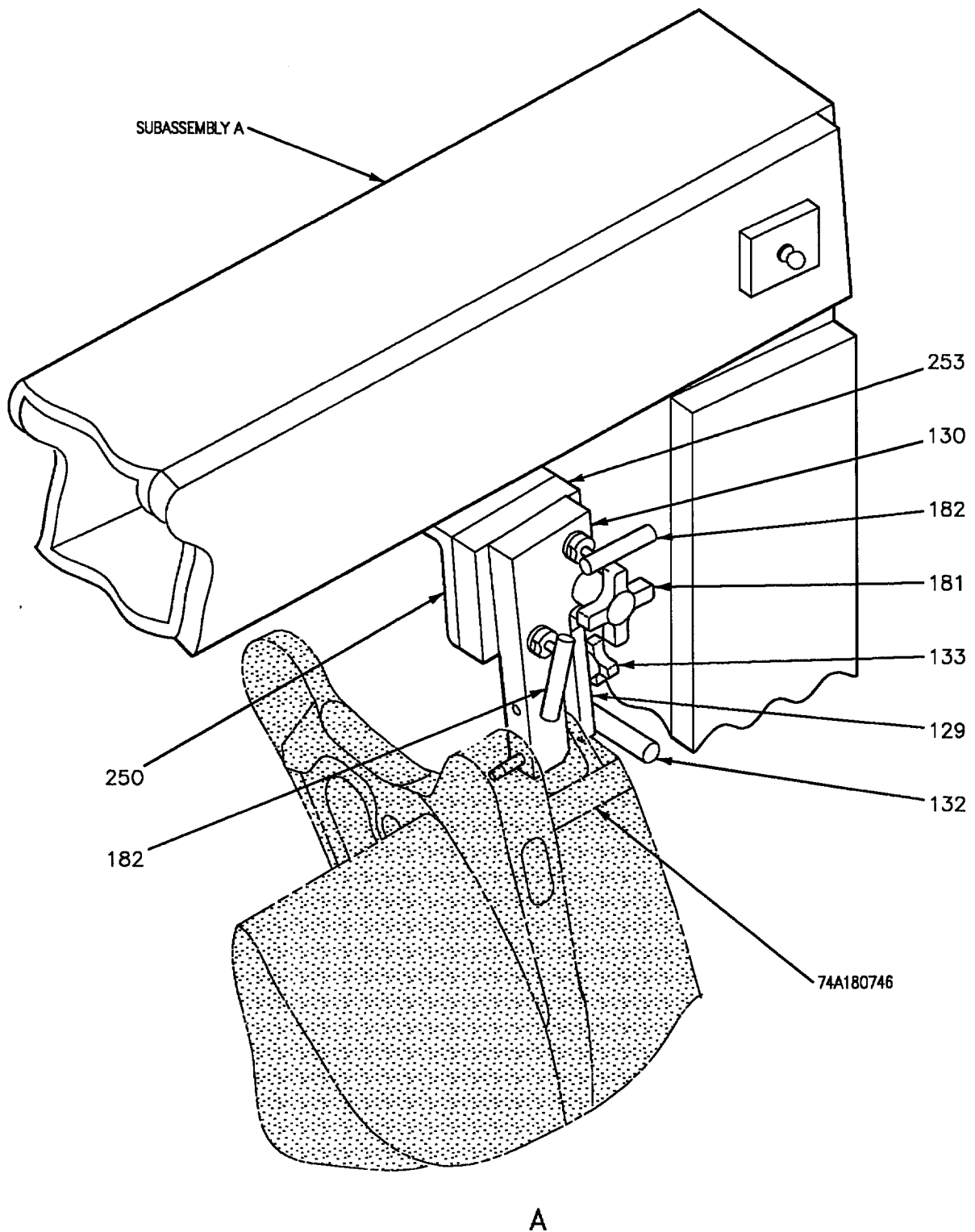


Figure 10. Rib, 74A180684 and Support, 74A180746 (Sheet 2)



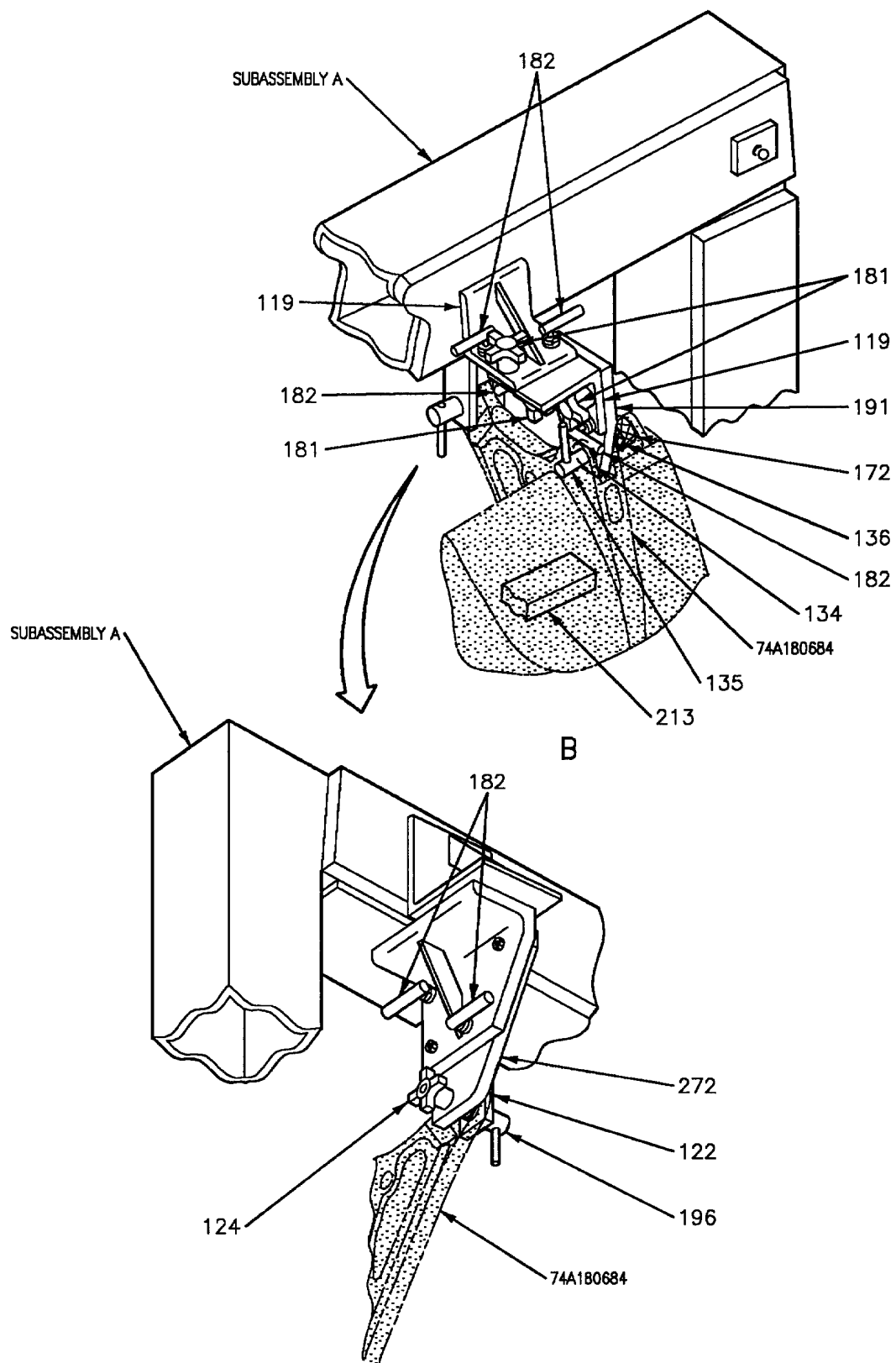


Figure 10. Rib, 74A180684 and Support, 74A180746 (Sheet 3)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
119	Angle	Attaches detail 191 to subassembly A.
122	Locator	Locates details for installation of flap.
124	Hand Knob	Secures detail 196 for locating flap.
129	Plate	Maintains location of support, 74A180746.
130	Locator	Locates hinge point of support, 74A180746.
132	L-Pin	Attaches and locates support, 74A180746.
133	Hand Knob	Secures detail 129.
134	Slotted Bushing	Locates detail 135 in support, 74A180746.
135	Pin	Locates rib, 74A180684.
136	Bushing	Locates detail 135, in support, 74A180746.
140, 141	Contour Board	Locates upper mold line.
149, 187	Locator	Locates details for installing flap.
172	Knurled Nut	Attaches to detail 135 to secure bushing in rib, 74A180684.
181	Hand Knob	Secures various details.
182	L-Pin	Locates and attaches various details.
191	Locator	Locates rib, 74A180684.
196	Pin	Locates inboard flap hinge.
250, 253	Angle Assembly	Attaches detail 130 to subassembly A.
272	Locator	Locates details for installing flap.

Figure 10. Rib, 74A180684 and Support, 74A180746 (Sheet 4)

25. INSTALLATION OF STRINGERS, 74A180642 AND 74A180734. See figure 11.

## Support Equipment Required

None

## Materials Required

None

a. Attach supports (details 26, 27, 28, 29, and 30) and locators (details 106, 107, 108, 109, and 110) to subassembly A using L-pins (detail 212) and hand knobs (detail 146), views A, B, and C.

b. Locate upper stringer, 74A180734, next to locators (detail 202) on supports (details 26, 27, and 28)

and next to locators (detail 215) on supports (details 29 and 30), views B and C.

c. Locate lower stringer, 74A180642, next to locators (detail 203) on supports (details 26 and 27) and next to locator (detail 214) on support (detail 30), views B and C.

d. Attach locators (details 216 and 219) using bullet nose dowels (detail 217) and hand knobs (detail 218), view C.

e. Clamp locators (details 216 and 219) to support, 74A180735, view C.

f. Hold stringers against flap structure and clamp in place five locations for upper stringer and three locations for lower stringer.

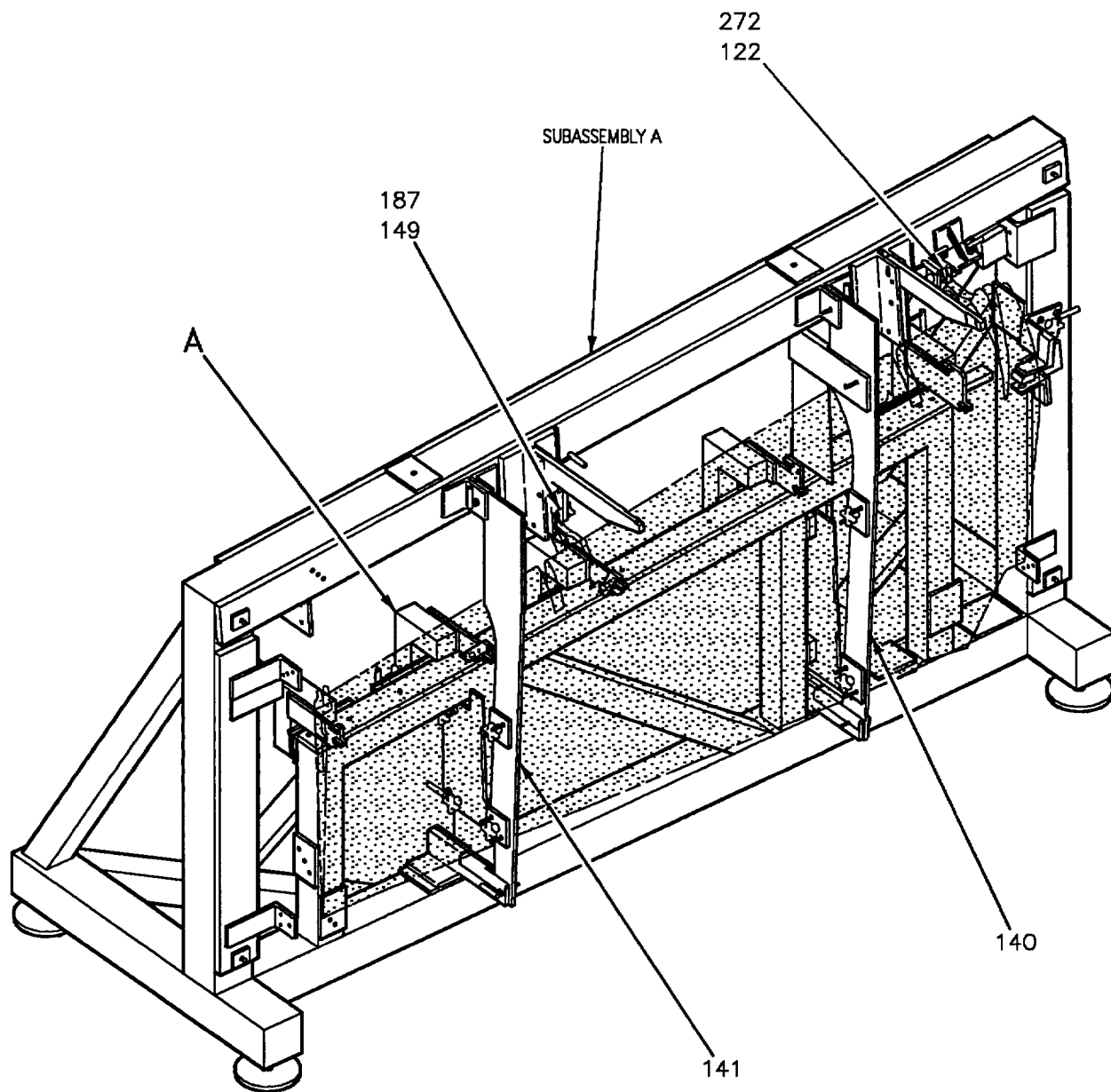
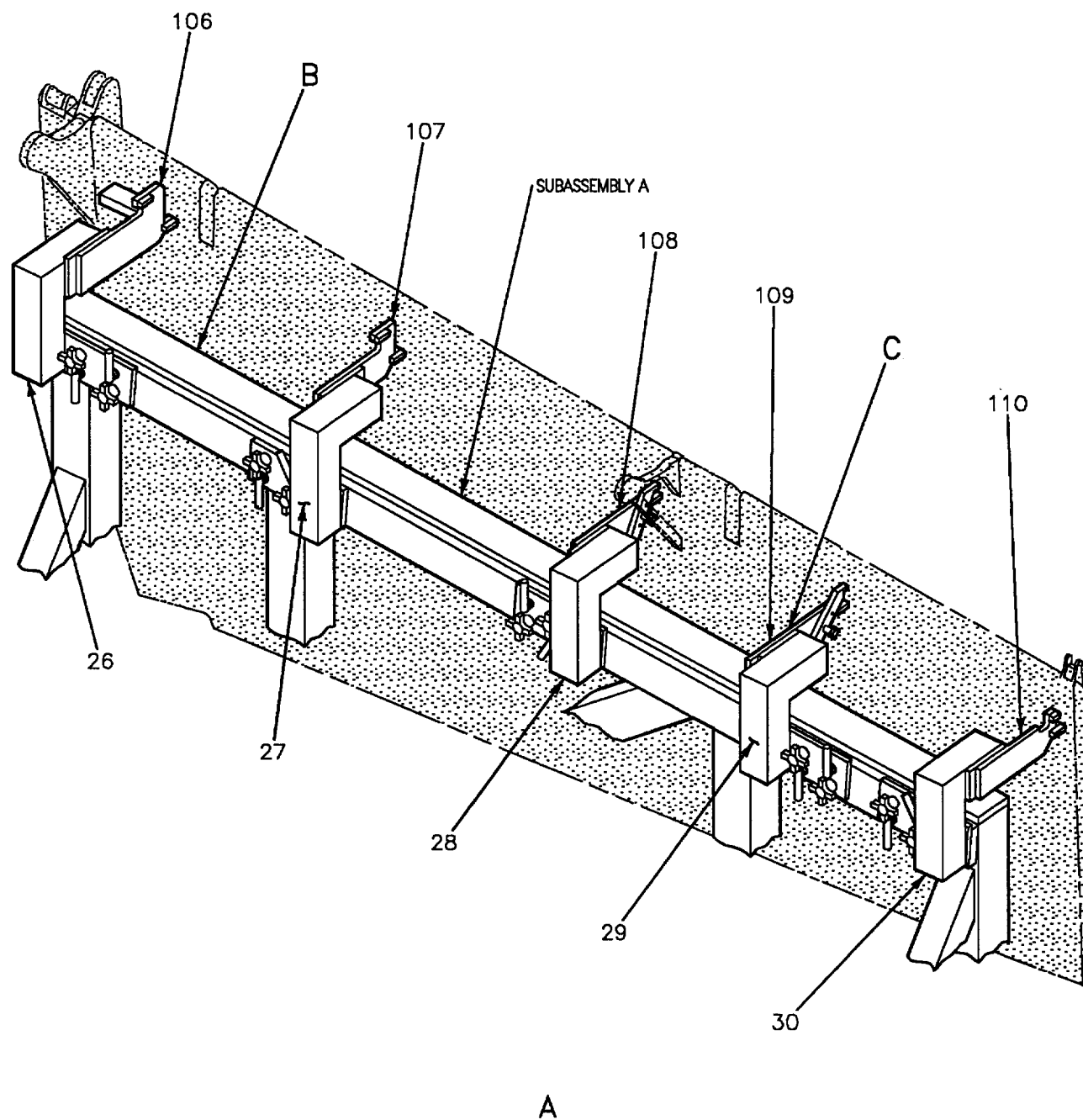


Figure 11. Stringers, 74A180642 and 74A180734 (Sheet 1)



**Figure 11. Stringers, 74A180642 and 74A180734 (Sheet 2)**

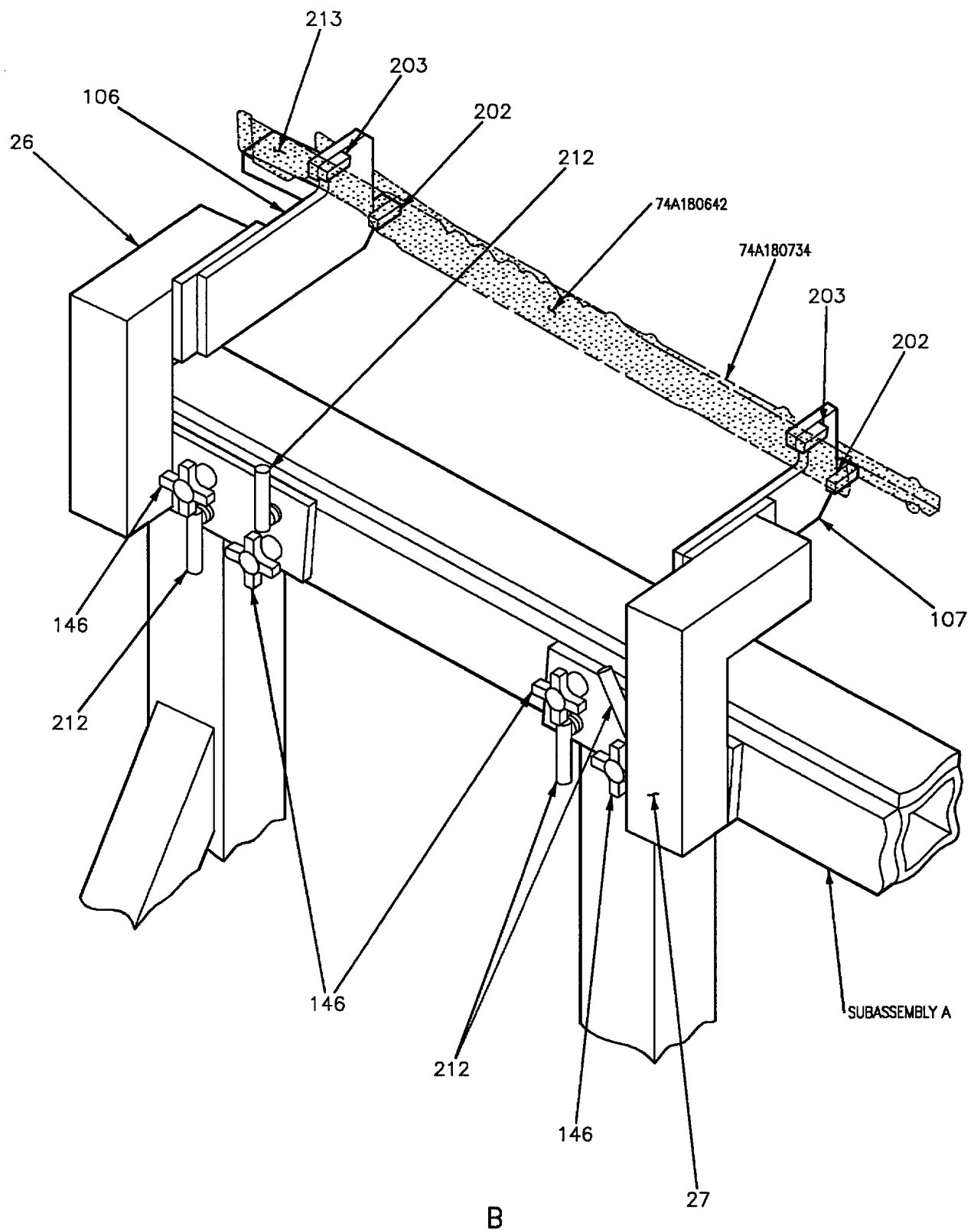


Figure 11. Stringers, 74A180642 and 74A180734 (Sheet 3)

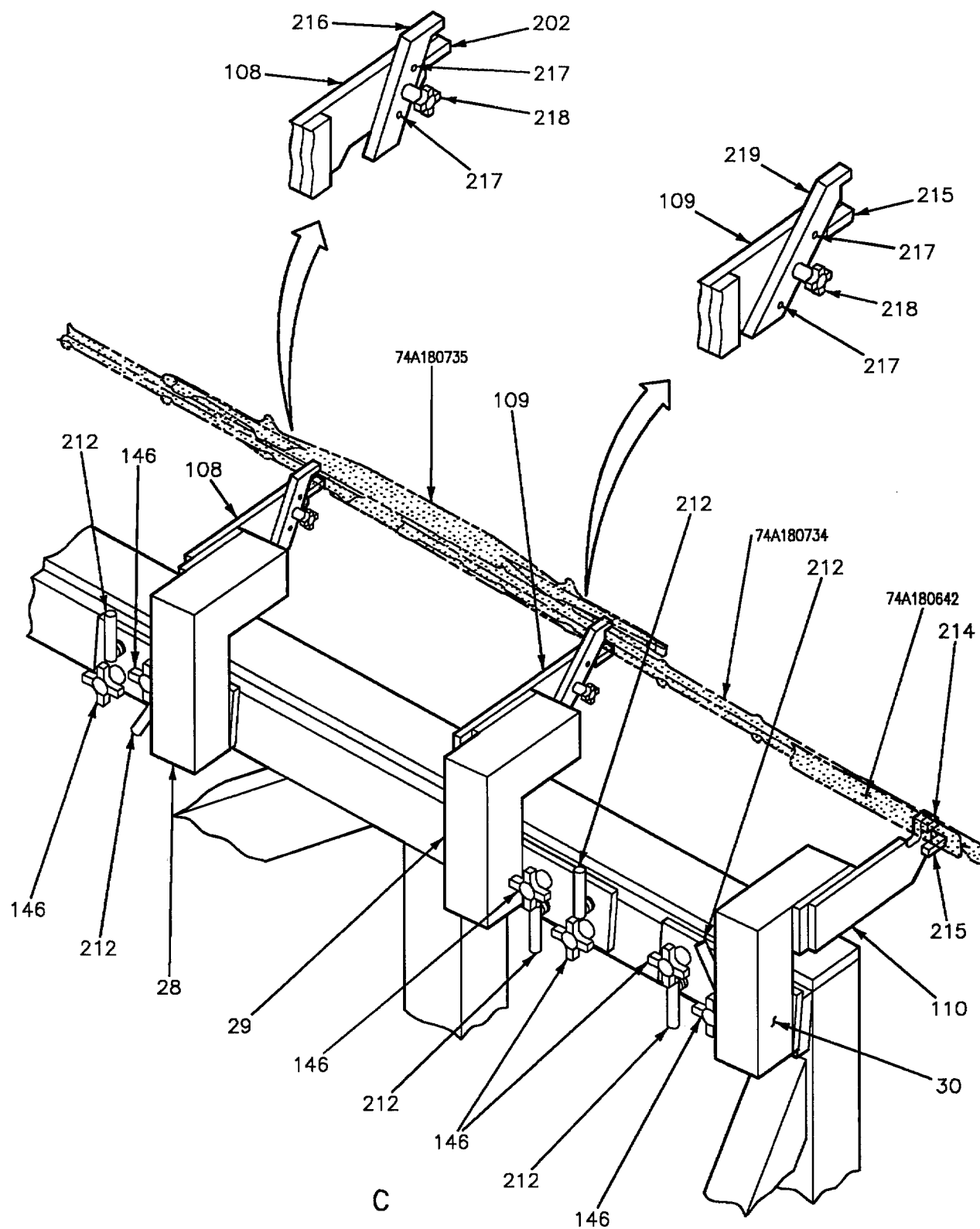


Figure 11. Stringers, 74A180642 and 74A180734 (Sheet 4)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
26, 27, 28, 29, 30	Support	Supports locators for stringers.
106, 107, 108, 109, 110	Locator	Locates stringers, 74A180642 and 74A180734.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
146	Hand Knob	Secures various details to subassembly A.
149, 187	Locator	Locates details for installing flap.
202, 215	Locator	Locates stringer, 74A180734.
203, 214	Locator	Locates stringer, 74A180642.
212	L-Pin	Locates and attaches various details to subassembly A.
216, 219	Locators	Locates support, 74A180735.
217	Bullet Nose Dowel	Locates details 216 and 219.
218	Hand Knob	Secures details 216 and 219.
272	Locator	Locates details for installing flap.

Figure 11. Stringers, 74A180642 and 74A180734 (Sheet 5)



26. INSTALLATION OF CELLULAR CORE ASSEMBLY, 74A180621. See figure 12.

## Support Equipment Required

None

## Materials Required

None

a. Locate cellular core sandwich, 74A180621, against aft surface of inboard hinge rib and outboard hinge rib.

b. Pin cellular core sandwich in place using L-pin (detail 296) for inboard/outboard location through slotted bushing (detail 153), view A.

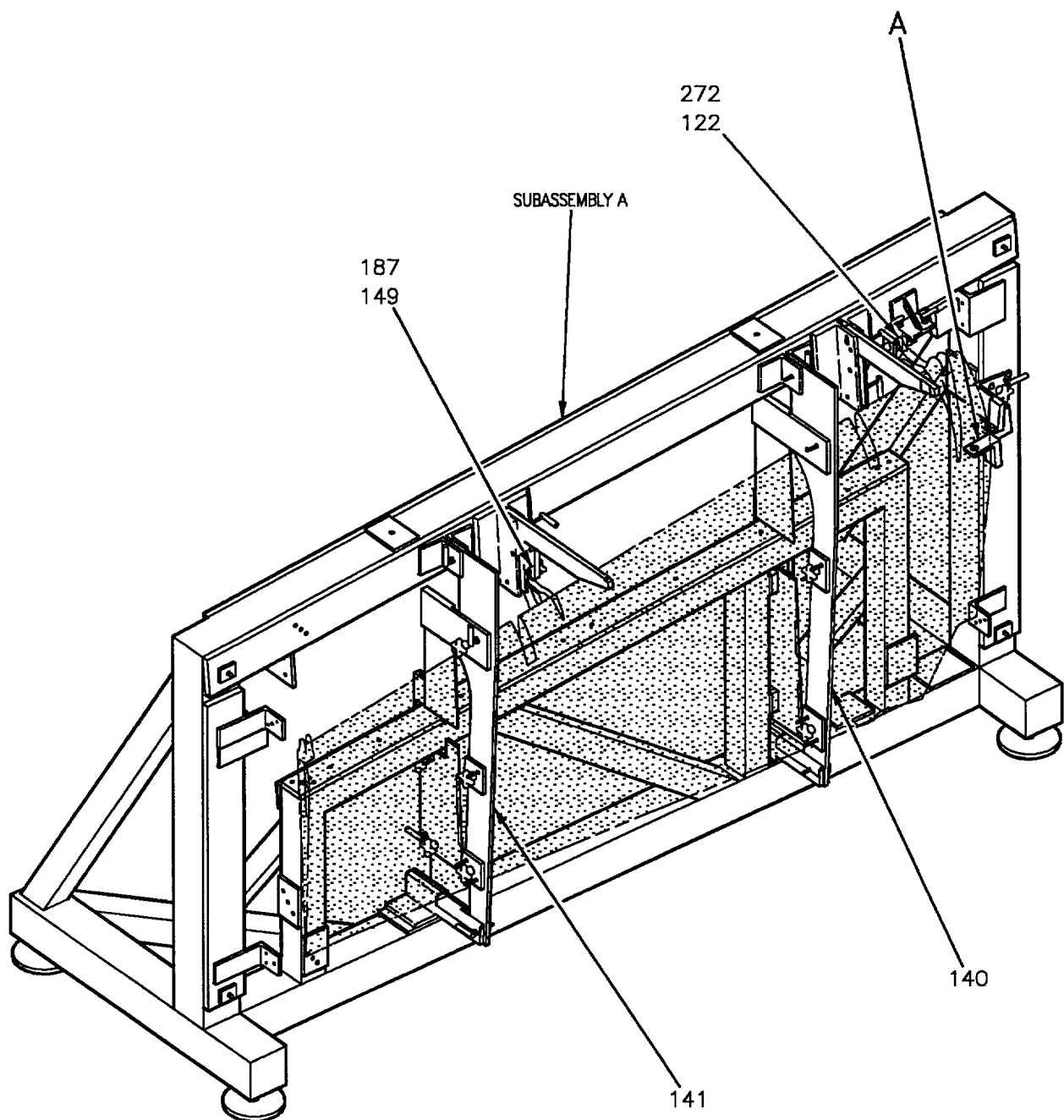
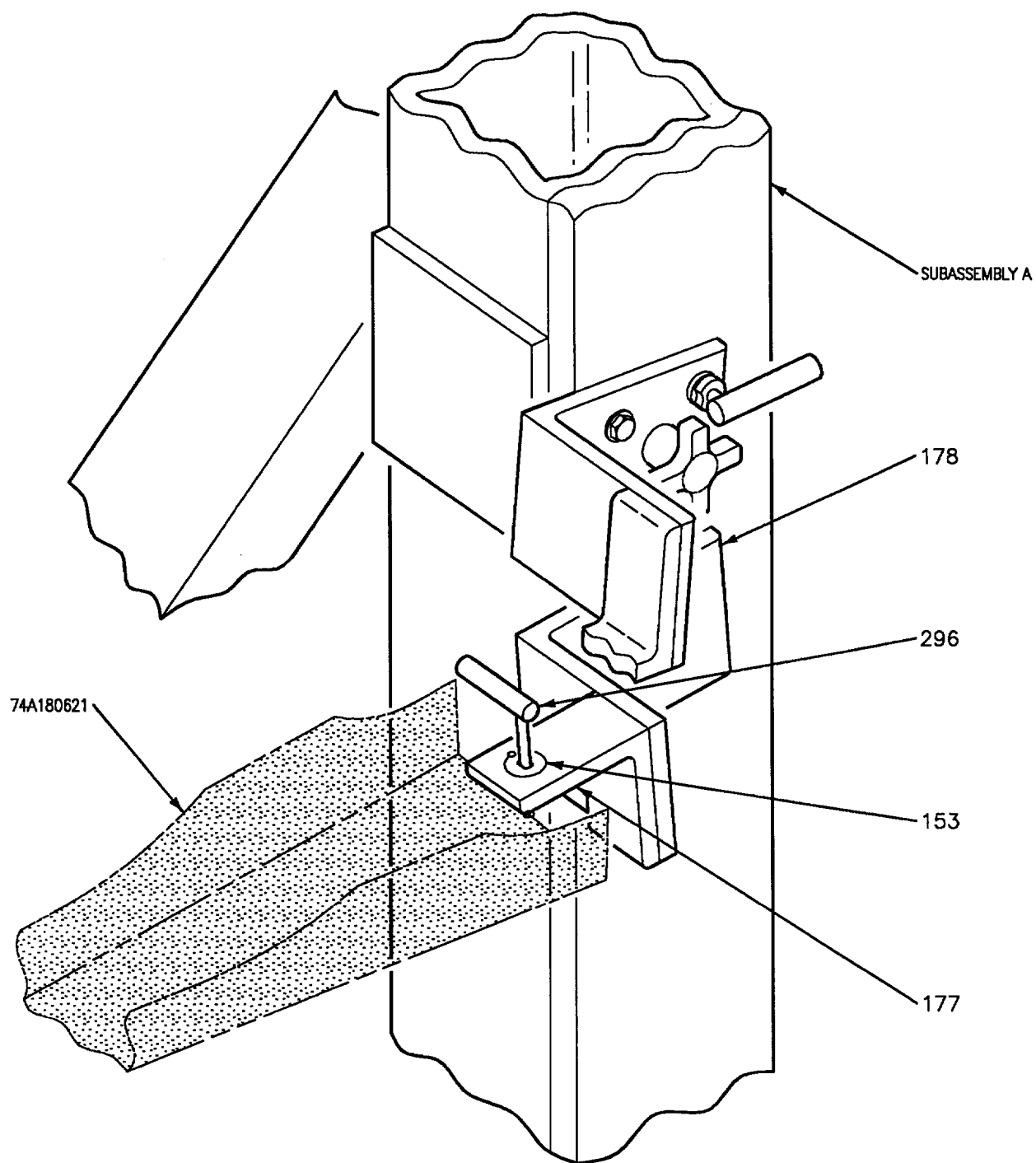


Figure 12. Cellular Core Assembly, 74A180621 (Sheet 1)



A

Figure 12. Cellular Core Assembly, 74A180621 (Sheet 2)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
122	Locator	Locates details for installing flap.
140, 141	Contour Board	Locates upper mold line.
149, 187	Locator	Locates details for installing flap.
153	Slotted Bushing	Locates detail 296.
177	Locator	Locates cellular core assembly.
178	Support	Supports detail 177.
272	Locator	Locates details for installing flap.
296	L-Pin	Locates cellular core assembly.

Figure 12. Cellular Core Assembly, 74A180621 (Sheet 3)

27. BUSHING REPLACEMENT AT 74A180746 SUPPORT. See figure 13.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Drill Motor	-
Repair Kit, Wing Landing Flap	RE374180003

### Materials Required

Nomenclature	Specification or Part Number
Bushing, First/Second Oversize, Inboard Lug	ST4M130-
Bushing, First/Second Oversize, Outboard Lug	ST4M139-
Bushing, Nominal Size, Inboard Lug	ST4M130-05022
Bushing, Nominal Size, Outboard Lug	ST4M139BC5-38

a. Install flap into fixture, paragraph 3, this WP. Make sure flap is firmly clamped in place.

b. If installed, remove locator (detail 130) from angle assembly (detail 250, 253). See figure 10, view A, this WP.

#### NOTE

If only one bushing is damaged, both bushings should be replaced, allowing in-line reaming of new bushings.

c. Remove bushings from 74A180746 support using details of 74D110174-1001 tool set. Do bushing removal procedures (A1-F18AC-SRM-200, WP004 37).

#### NOTE

First oversize hole is 0.4531 inch diameter. Second oversize hole is 0.4687 inch diameter.

d. Inspect holes in 74A180746 support for nominal dimension of 0.4375 +0.0005 -0.0000 inch diameter. If nominal dimension exists, do step e. If first oversize hole is required, do step f. If second oversize hole is required, do step g.

e. Nominal size hole:

(1) Apply chemical treatment to 74A180746 support lug hole diameters (A1-F18AC-SRM-500, WP008 00).

(2) Install new ST4M139BC5-38 bushing into outboard lug and ST4M130-05022 bushing into inboard lug using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

(3) Insert liner bushing (detail 256) into locator (detail 252), view A.

(4) Insert liner bushing (detail 260) into support (detail 251), view A.

(5) Insert drill bushing (detail 257) into liner bushing (detail 256), view B.

(6) Insert drill bushing (detail 261) into liner bushing (detail 260), view B.

(7) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

#### NOTE

SPTRE174180003 reamer is part of RE374180003 repair kit.

(8) Insert SPTRE174180003 reamer into drill bushing (detail 257) and in-line ream bushings to 0.3125 inch diameter, view B.

(9) Remove reamer from drill bushing (detail 257).

(10) Inspect inside diameter of bushings for nominal dimension of 0.3125 +0.0015 -0.0000 inch diameter.

f. First oversize hole:

(1) Insert liner bushing (detail 256) into locator (detail 252), view A.

(2) Insert liner bushing (detail 260) into support (detail 251), view A.

## NOTE

Drill bushings (detail 106, 108) are part of RE374180003 repair kit.

(3) Insert drill bushing (detail 106) into liner bushing (detail 260), view C.

(4) Insert drill bushing (detail 108) into liner bushing (detail 256), view C.

(5) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

## NOTE

SPT2RE174180003 and SPT3RE174180003 reamers are part of RE374180003 repair kit.

(6) Attach SPT2RE174180003 reamer to drill motor.

(7) Insert reamer into drill bushing (detail 108) and in-line ream 74A180746 support lugs to 0.4501 inch diameter, view C.

(8) Remove hand knob (detail 181) and L-Pins (detail 182) securing support (detail 251) to angle assembly (detail 250, 253), view A.

(9) Insert drill bushing (detail 262) into liner bushing (detail 260), view C.

(10) Insert drill bushing (detail 258) into liner bushing (detail 256), view C.

(11) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

(12) Insert SPT3RE174180003 reamer into drill bushing (detail 258) and final ream 74A180746 support lugs to 0.4531 inch diameter, view C.

(13) Remove hand knob (detail 181) and L-Pins (detail 182) securing support (detail 251) to angle assembly (detail 250, 253), view A.

(14) Apply chemical treatment to 74A180746 support lug hole diameters (A1-F18AC-SRM-500, WP008 00).

(15) Install new first oversize bushings into 74A180746 support using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

(16) Insert drill bushing (detail 257) into liner bushing (detail 256), view B.

(17) Insert drill bushing (detail 261) into liner bushing (detail 260), view B.

(18) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

## NOTE

SPTRE174180003 reamer is part of RE374180003 repair kit.

(19) Insert SPTRE174180003 reamer into drill bushing (detail 257) and in-line ream bushings to 0.3125 inch diameter, view B.

(20) Remove reamer from drill bushing (detail 257).

(21) Inspect inside diameter of bushings for nominal dimension of 0.3125 +0.0015 -0.0000 inch diameter.

g. Second oversize hole:

(1) Insert liner bushing (detail 256) into locator (detail 252), view A.

(2) Insert liner bushing (detail 260) into support (detail 251), view A.

## NOTE

Drill bushings (detail 107, 109) are part of RE374180003 repair kit.

(3) Insert drill bushing (detail 107) into liner bushing (detail 260), view C.

(4) Insert drill bushing (detail 109) into liner bushing (detail 256), view C.

(5) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

## NOTE

SPT4RE174180003 and SPT5RE174180003 reamers are part of RE374180003 repair kit.

(6) Attach SPT4RE174180003 reamer to drill motor.

(7) Insert reamer into drill bushing (detail 109) and in-line ream 74A180746 support lugs to 0.4644 inch diameter, view C.

(8) Remove hand knob (detail 181) and L-Pins (detail 182) securing support (detail 251) to angle assembly (detail 250, 253), view A.

(9) Insert drill bushing (detail 259) into liner bushing (detail 256), view C.

(10) Insert drill bushing (detail 263) into liner bushing (detail 260), view C.

(11) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

(12) Insert SPT5RE174180003 reamer into drill bushing (detail 259) and final ream 74A180746 support lugs to 0.4687 inch diameter, view C.

(13) Remove hand knob (detail 181) and L-Pins (detail 182) securing support (detail 251) to angle assembly (detail 250, 253), view A.

(14) Apply chemical treatment to 74A180746 support lug hole diameters (A1-F18AC-SRM-500, WP008 00).

(15) Install new second oversize bushings into 74A180746 support using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

(16) Insert drill bushing (detail 257) into liner bushing (detail 256), view B.

(17) Insert drill bushing (detail 261) into liner bushing (detail 260), view B.

(18) Attach support (detail 251) to angle assembly (detail 250, 253) using L-Pins (detail 182) and hand knob (detail 181), view A.

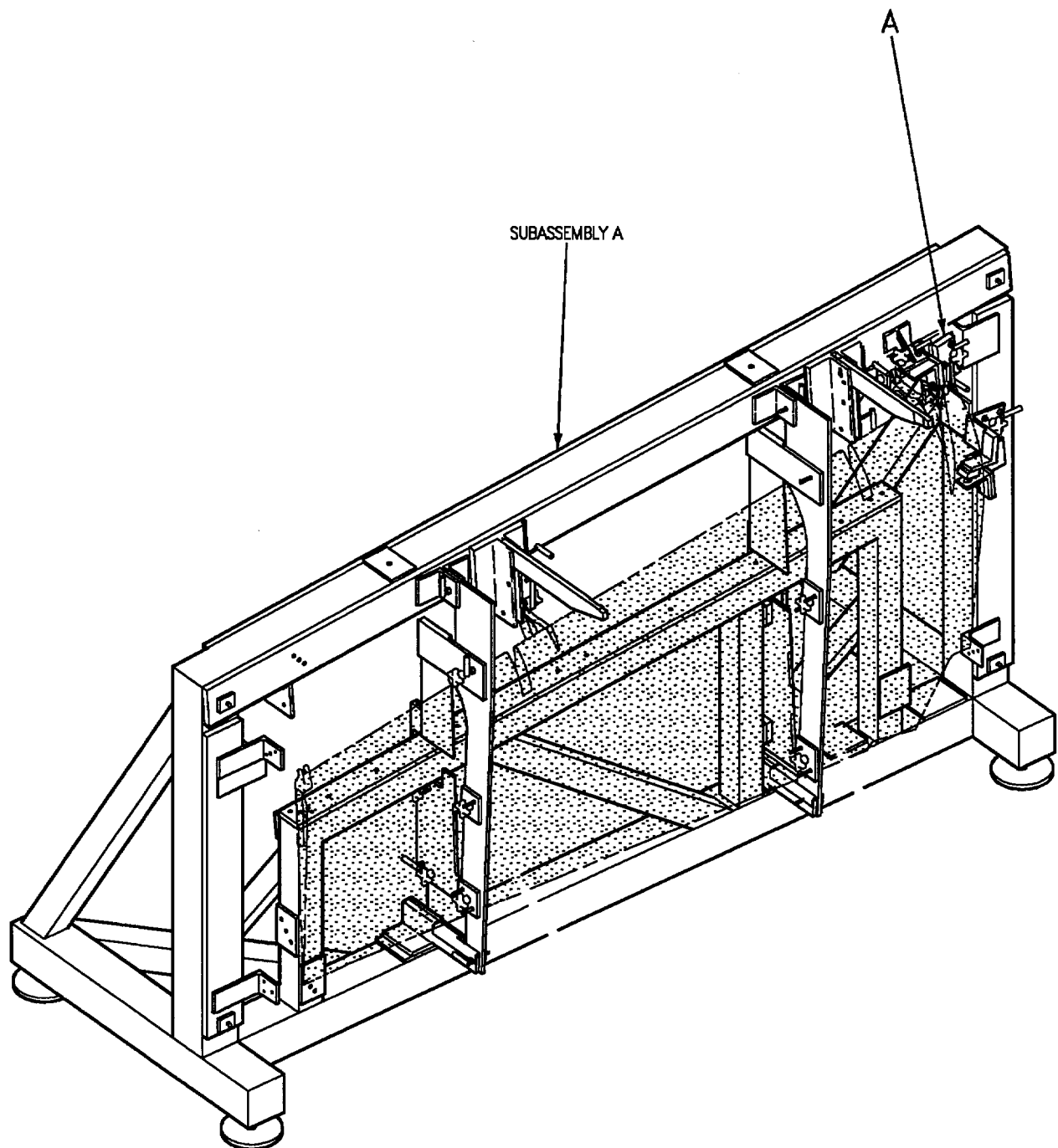
## NOTE

SPTRE174180003 reamer is part of RE374180003 repair kit.

(19) Insert SPTRE174180003 reamer into drill bushing (detail 257) and in-line ream bushings to 0.3125 inch diameter, view B.

(20) Remove reamer from drill bushing (detail 257).

(21) Inspect inside diameter of bushings for nominal dimension of 0.3125 +0.0015 -0.0000 inch diameter.



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Figure 13. Bushing Replacement At 74A180746 Support (Sheet 1)



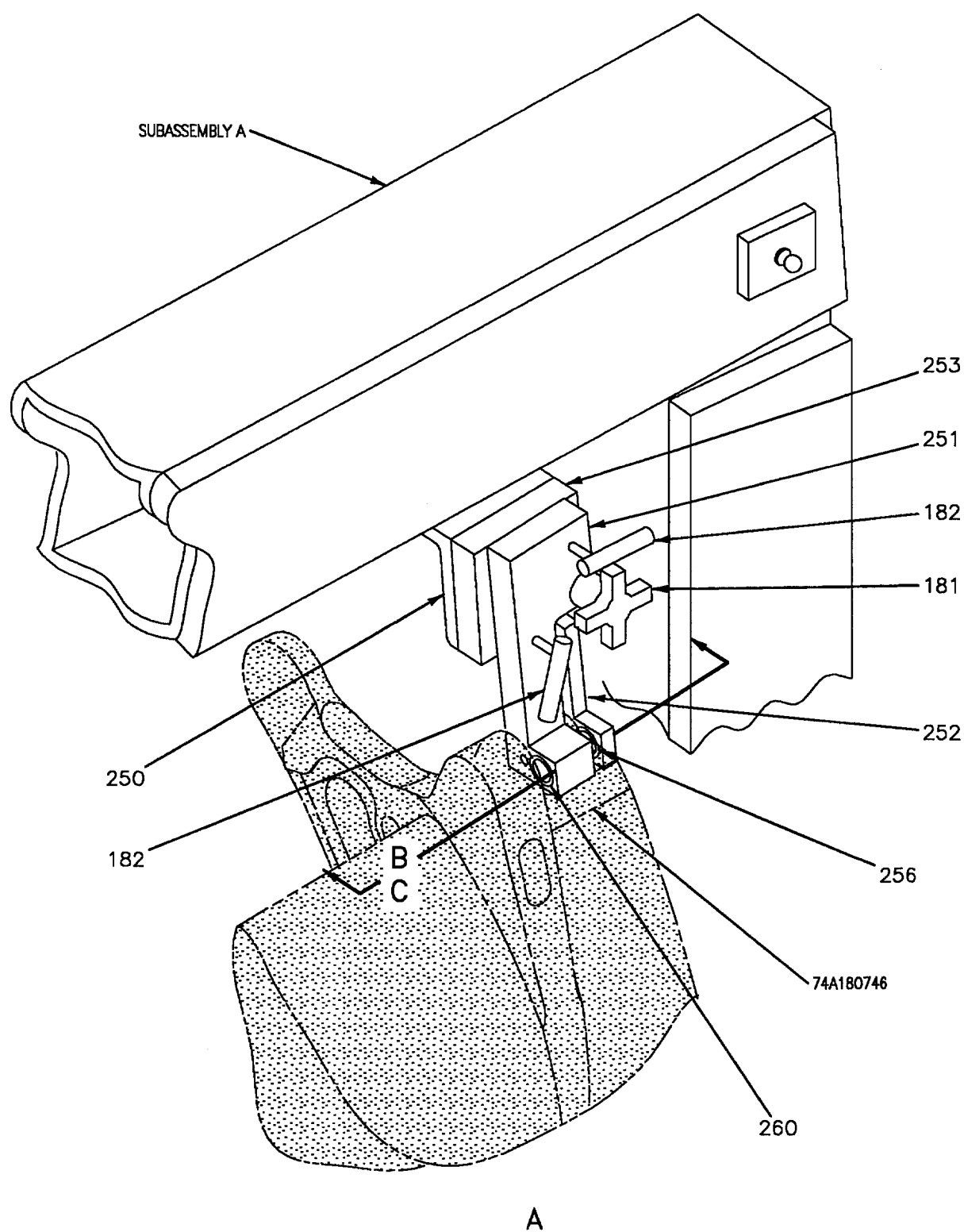
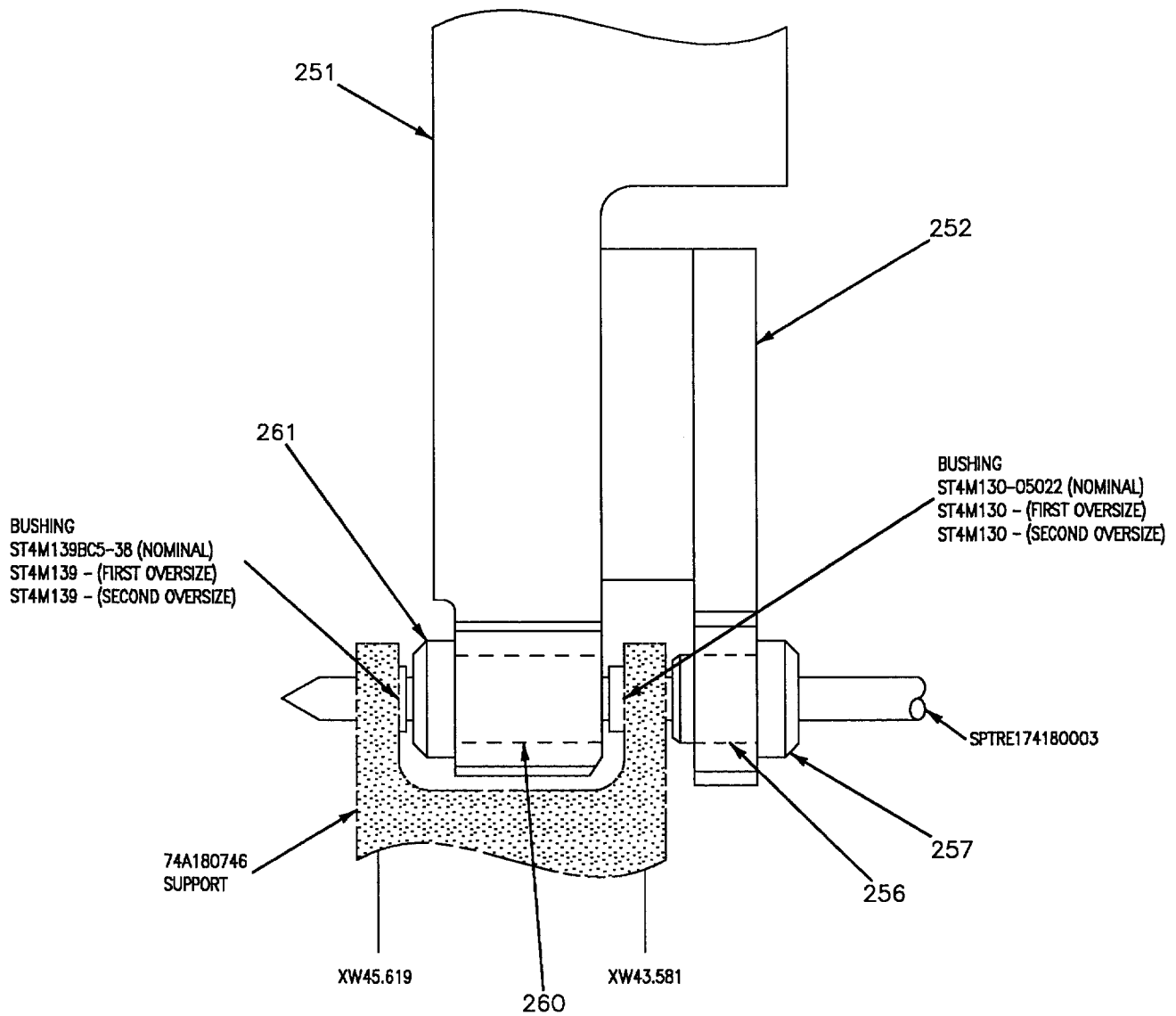
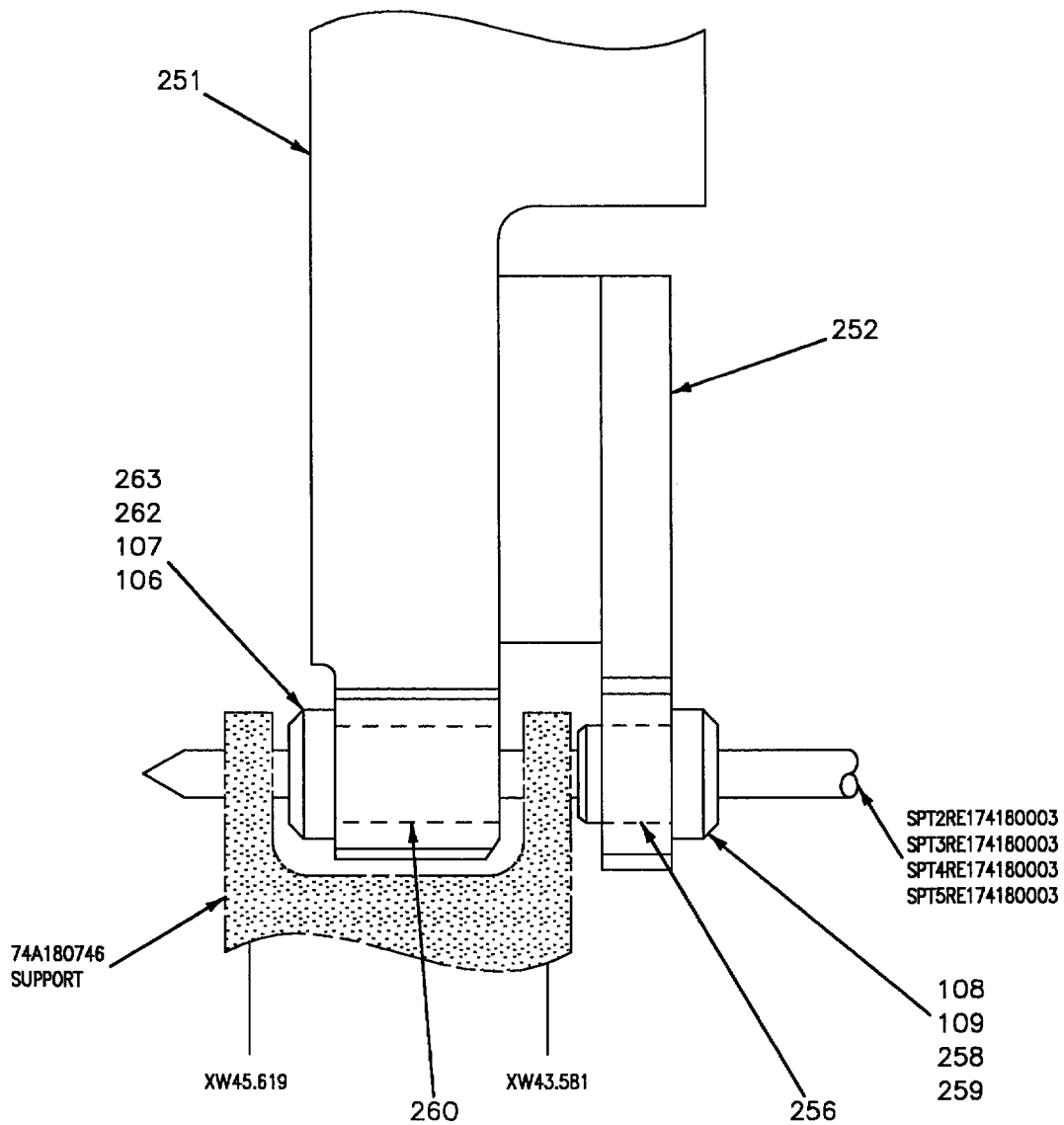


Figure 13. Bushing Replacement At 74A180746 Support (Sheet 2)



B

Figure 13. Bushing Replacement At 74A180746 Support (Sheet 3)



C

Figure 13. Bushing Replacement At 74A180746 Support (Sheet 4)

Detail No.	Name	Function
Subassembly A	Frame	Main support for all details.
181	Hand Knob	Secures various details to supports.
182	L-Pin	Locates various details to supports.
250, 263	Angle Assembly	Attaches support (detail 251) to subassembly A.
251	Support	Main support used to locate nominal size holes in bushings and first/second oversize holes in 74A180746 support.
252	Locator	Used to locate nominal size holes in bushings and first/second oversize holes in 74A180746 support.
256	Liner Bushing	Inserts into locator (detail 252) for locating drill bushings (detail 257, 258, 259).
260	Liner Bushing	Inserts into support (detail 251) for locating drill bushings (detail 261, 262, 263).
257, 261	Drill Bushing	Guides 0.3125 inch diameter reamer.
258, 262	Drill Bushing	Guides 0.4531 inch diameter reamer.
259, 263	Drill Bushing	Guides 0.4687 inch diameter reamer.

Figure 13. Bushing Replacement At 74A180746 Support (Sheet 5)

28. BUSHING REPLACEMENT AT 74A180684 RIB ASSEMBLY. See figure 14.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Rack Feed Drilling Machine	74D110312-1003
Repair Kit, Wing Landing Flap	RE374180003

### Materials Required

Nomenclature	Specification or Part Number
Bushing, First Oversize, Inboard Lug	ST4M130-16017
Bushing, First Oversize, Outboard Lug	ST4M130-12027
Bushing, Nominal Size, Inboard Lug	ST4M139BC16-34
Bushing, Nominal Size, Outboard Lug	ST4M192C12-34

a. Install flap into fixture, paragraph 3, this WP. Make sure flap is firmly clamped in place.

b. If installed, remove locator (detail 191) from angle (detail 119). See figure 10, view B, this WP.

#### NOTE

If only one bushing is damaged, both bushings should be replaced, allowing in-line reaming of new bushings.

c. Remove bushings from 74A180684 rib assembly using details of 74D110174-1001 tool set. Do bushing removal procedures (A1-F18AC-SRM-200, WP004 37).

#### NOTE

First oversize hole is 1.2031 inch diameter in inboard lug and 1.0151 inch diameter in outboard lug.

d. Inspect holes in 74A180684 rib assembly for nominal dimension of 1.1875 +0.0010 -0.0005 inch

diameter in inboard lug and 0.9995 +0.0010 -0.0005 inch diameter in outboard lug. If nominal dimension exists, do step e. If first oversize holes are required, do step f.

e. Nominal size holes:

(1) Install new ST4M139BC16-34 bushing into inboard lug and ST4M192C12-34 bushing into outboard lug using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

(2) Insert liner bushing (detail 285) into locator (detail 274), view A.

(3) Insert liner bushing (detail 264) into locator (detail 273), view A.

(4) Attach locators (detail 273, 274) to angle (detail 119) using L-Pins (detail 182) and hand knobs (detail 181), view A.

(5) Prepare 74D110312-1003 drilling machine. Do equipment setup procedures (A1-F18AC-SRM- 200, WP004 17).

#### NOTE

Drill bushing (subassembly A) is part of RE374180003 repair kit.

(6) Attach drill bushing (subassembly A) onto drilling machine nose piece.

#### NOTE

SPT6RE174180003TD and SPT7RE174180003TD step reamers are part of RE374180003 repair kit.

(7) Attach SPT6RE174180003TD step reamer to 74D110312-1003 drilling machine.

(8) Locate drilling machine by inserting drill bushing (subassembly A) into liner bushing (detail 264), view B.

(9) Lock drilling machine in position by turning drill bushing (subassembly A) into lock screw (detail 254), view B.

(10) In-line ream 0.9970 inch diameter hole in inboard bushing and 0.7465 inch diameter hole in outboard bushing.

(11) Remove drilling machine.

(12) Install drill bushing (subassembly E) into liner bushing (detail 264), view B.

(13) Lock drill bushing (subassembly E) in position by turning into lock screw (detail 254), view B.

(14) Insert SPT7RE174180003TD step reamer into drill bushing (subassembly E), view B.

(15) Hand ream inboard bushing to 1.0000 inch diameter and outboard bushing to 0.7495 inch diameter.

(16) Remove step reamer.

(17) Inspect inboard bushing hole diameter for nominal dimension of 1.0000 +0.0000 -0.0005 inch diameter. Inspect outboard bushing hole diameter for nominal dimension of 0.7495 +0.0005 -0.0000 inch diameter.

f. First oversize holes:

(1) Insert liner bushing (detail 285) into locator (detail 274), view A.

(2) Insert liner bushing (detail 264) into locator (detail 273), view A.

(3) Attach locators (detail 273, 274) to angle (detail 119) using L-Pins (detail 182) and hand knobs (detail 181), view A.

(4) Prepare 74D110312-1003 drilling machine. Do equipment setup procedures (A1-F18AC-SRM-200, WP004 17).

## NOTE

Drill bushing (subassembly B) is part of RE374180003 repair kit.

(5) Attach drill bushing (subassembly B) to drilling machine nose piece.

## NOTE

SPT8RE174180003TD and SPT9RE174180003TD step reamers are part of RE374180003 repair kit.

(6) Attach SPT8RE174180003TD step reamer to 74D110312-1003 drilling machine.

(7) Locate drilling machine by inserting drill bushing (subassembly B) into liner bushing (detail 264), view C.

(8) Lock drilling machine in position by turning drill bushing (subassembly B) into lock screw (detail 254), view C.

(9) In-line ream 1.1980 inch diameter hole in inboard lug and 1.0100 inch diameter hole in outboard lug.

(10) Remove drilling machine.

(11) Install drill bushing (subassembly F) into liner bushing (detail 264), view C.

(12) Insert SPT9RE174180003TD step reamer into drill bushing (subassembly F).

(13) Hand ream inboard lug to 1.2031 inch diameter and outboard lug to 1.0151 inch diameter.

(14) Remove step reamer.

(15) Remove hand knobs (detail 181) and L-Pins (detail 182) securing locators (detail 273, 274) to angle (detail 119), view A.

(16) Install new first oversize ST4M130-16017 bushing into inboard lug and ST4M130-12027 bushing into outboard lug using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

(17) Attach locators (detail 273, 274) to angle (detail 119) using L-Pins (detail 182) and hand knobs (detail 181), view A.

## NOTE

Drill bushing (subassembly A) is part of RE374180003 repair kit.

(18) Attach drill bushing (subassembly A) to drilling machine nose piece.

## NOTE

SPT6RE174180003TD and  
SPT7RE174180003TD step reamers are part of  
RE374180003 repair kit.

(19) Attach SPT6RE174180003TD step reamer to  
74D110312-1003 drilling machine.

(20) Locate drilling machine by inserting drill  
bushing (subassembly A) into liner bushing (detail 264),  
view B.

(21) Lock drilling machine in position by turning  
drill bushing (subassembly A) into lock screw (detail 254),  
view B.

(22) In-line ream 0.9970 inch diameter hole in  
inboard bushing and 0.7465 inch diameter hole in outboard  
bushing.

(23) Remove drilling machine.

(24) Install drill bushing (subassembly E) into  
liner bushing (detail 264), view B.

(25) Lock drill bushing (subassembly E) in  
position by turning into lock screw (detail 254), view B.

(26) Insert SPT7RE174180003TD step reamer  
into drill bushing (subassembly E).

(27) Hand ream inboard bushing to 1.0000 inch  
diameter and outboard bushing to 0.7495 inch diameter.

(28) Remove step reamer.

(29) Inspect inboard bushing hole diameter for  
normal dimension of 1.0000 +0.0000 -0.0005 inch  
diameter. Inspect outboard bushing hole diameter for  
nominal dimension of 0.7495 +0.0005 -0.0000 inch  
diameter.

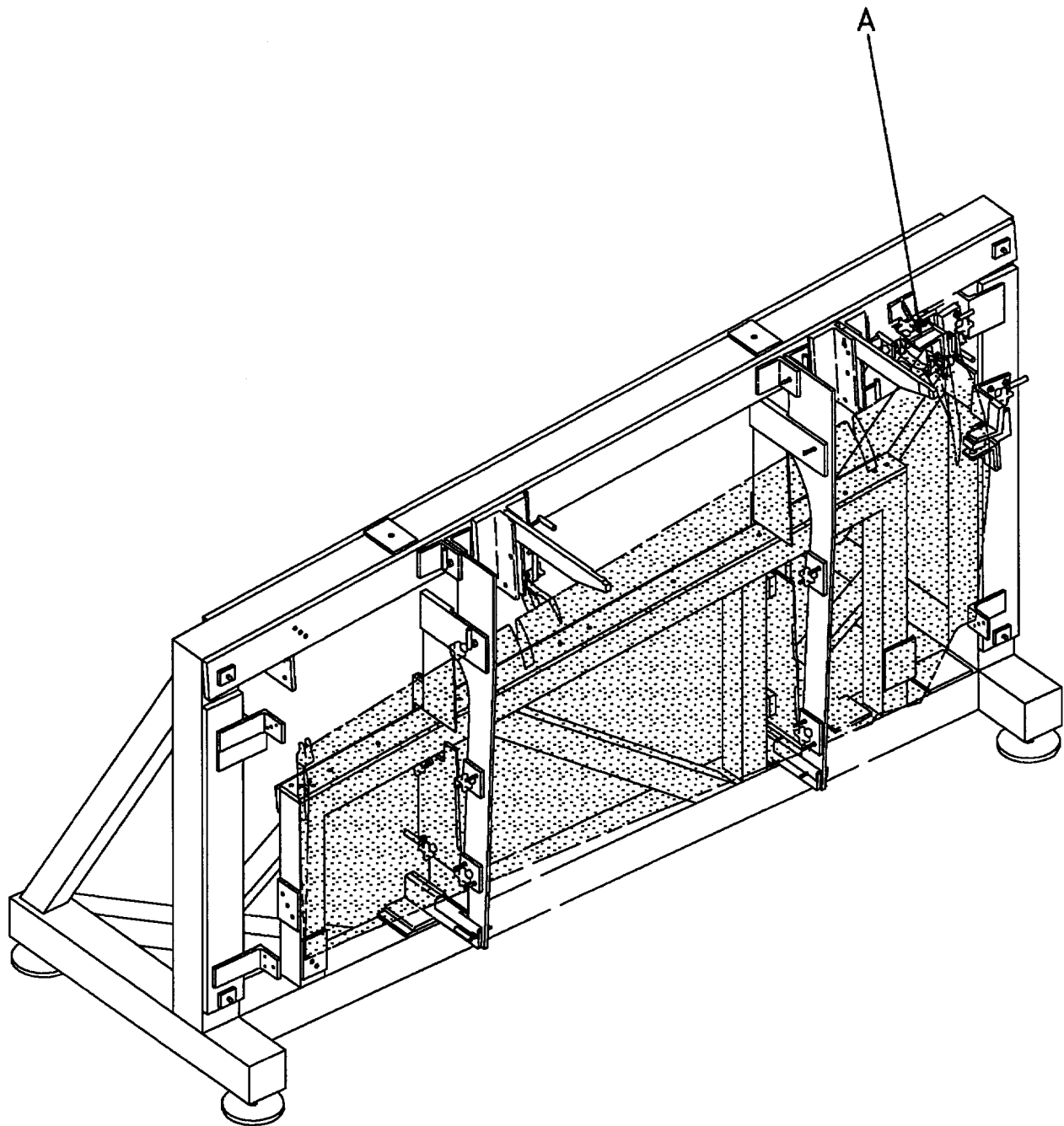
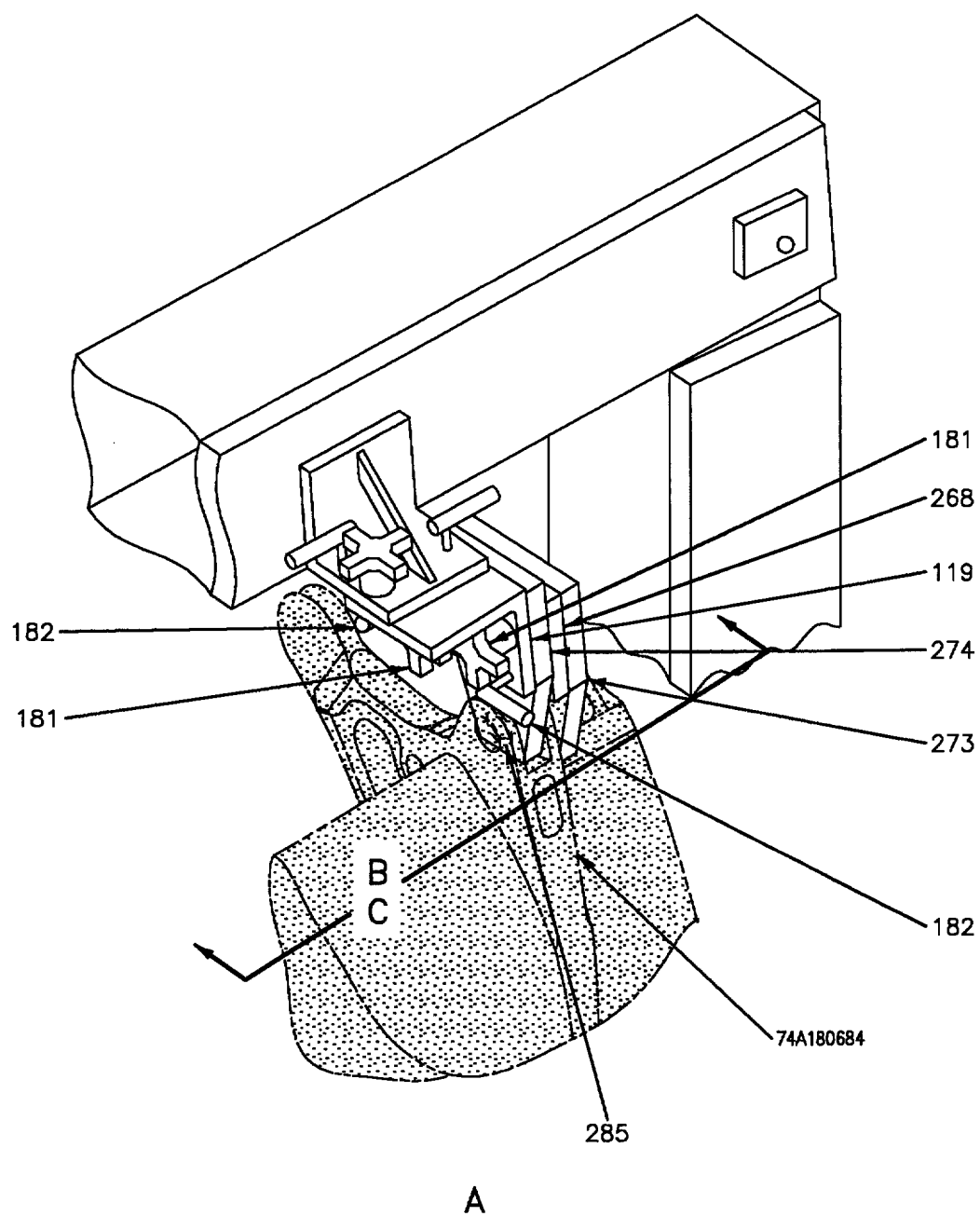


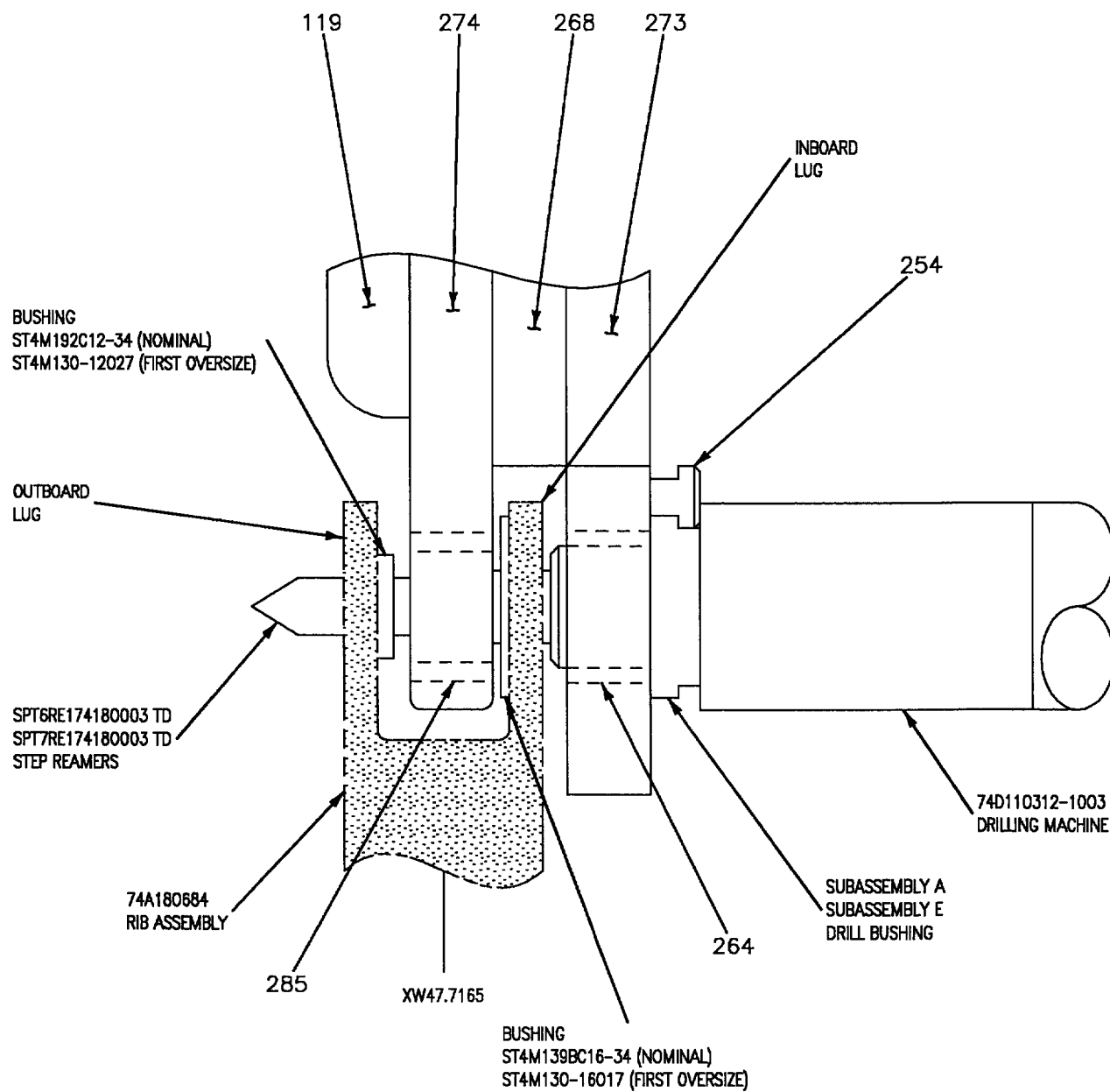
Figure 14. Bushing Replacement At 74A180684 Rib Assembly (Sheet 1)





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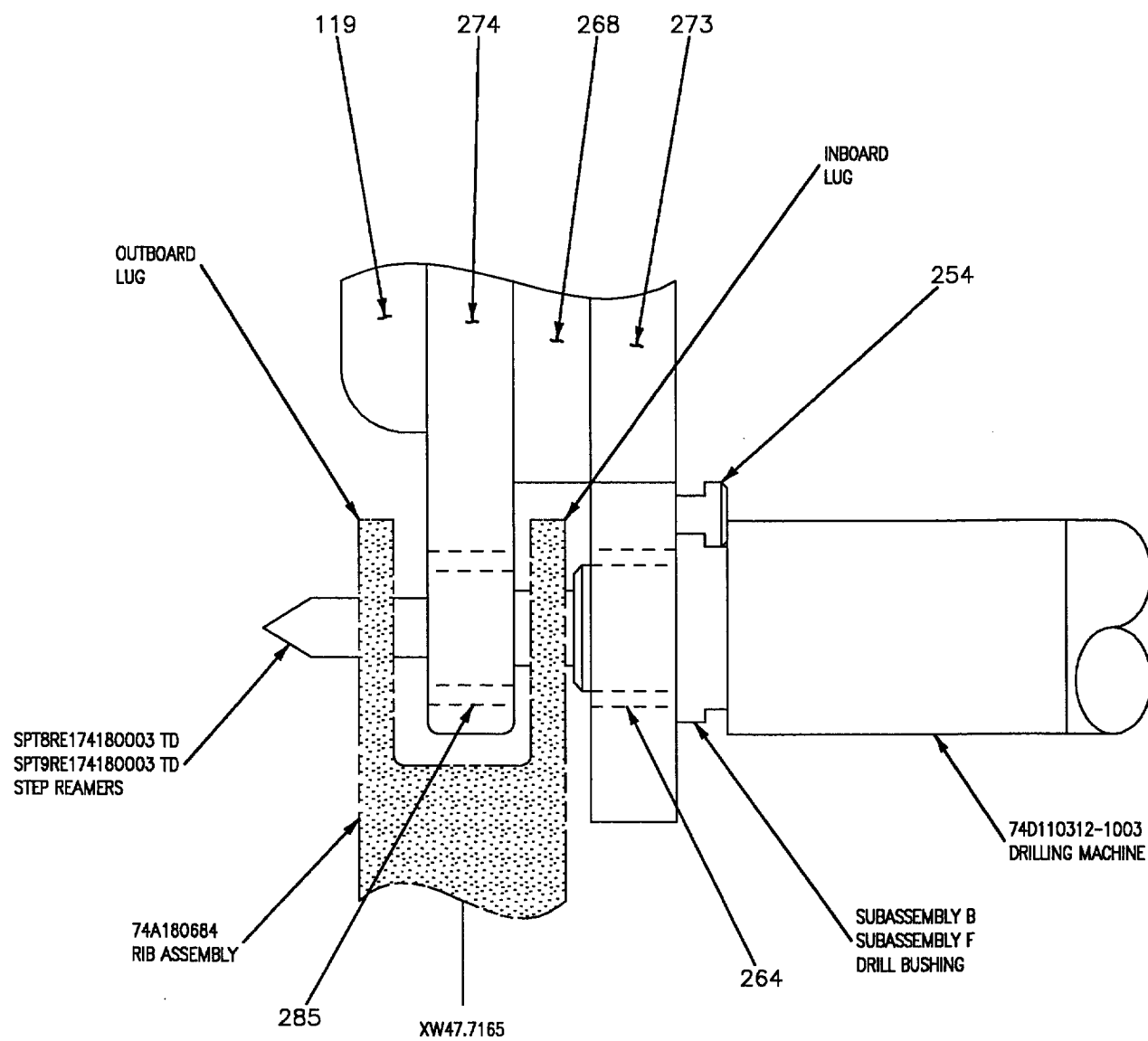
Figure 14. Bushing Replacement At 74A180684 Rib Assembly (Sheet 2)



B

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Figure 14. Bushing Replacement At 74A180684 Rib Assembly (Sheet 3)



C

Figure 14. Bushing Replacement At 74A180684 Rib Assembly (Sheet 4)

Detail No.	Name	Function
Subassembly E	Drill Bushing	Guides step reamer for nominal size holes in bushings.
Subassembly F	Drill Bushing	Guides step reamer for first oversize holes in 74A180684 rib assembly.
119	Angle	Attaches locators (detail 273, 274) to main frame.
181	Hand Knob	Secures various details to supports.
182	L-Pin	Locates various details to supports.
254	Lock Screw	Secures drill bushings in position.
264	Liner Bushing	Inserts into locator (detail 273) for locating drill bushings.
273	Locator	Used to locate nominal size holes in bushings and first over-size holes in 74A180684 rib assembly inboard lug location.
274	Locator	Used to locate nominal size holes in bushings and first over-size holes in 74A180684 rib assembly outboard lug location.
285	Liner Bushing	Inserts into locator (detail 274) for locating drill bushings.

Figure 14. Bushing Replacement At 74A180684 Rib Assembly (Sheet 5)

## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## TRAILING EDGE FLAP

HOLE LOCATING PLATE SET  
RE274180003-1, -2

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Accessory Kits and Spray Mist Coolant Tank .....	WP004 16
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00

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Drilling Holes in 74A180756 Skin Substructure .....	9

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The trailing edge flap shall be removed and placed on a work surface in the inverted position to perform the procedure below. The plate sets for 74A180756 skins will be used to locate the attach hole pattern in skin and/or mating substructure. The plate sets contain high temperature fiberglass bonded assemblies. Hole boards are provided to show holes, hole numbers, repair numbers, and material of skin and substructure. Repair numbers on the hole boards are color coded to coincide with bonded assemblies and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

Table 1. Details of RE274180003 Used  
For Pinning Index Holes

Hole Number	Hole Dia.	Step Pin Detail No.	Potted Busing Detail No.
311	0.165	132	129
324	0.165	132	129
604	0.165	132	129
646	0.165	132	129
953	0.165	132	129

**Table 1. Details of RE274180003 Used For Pinning Index Holes (Continued)**

Hole Number	Hole Dia.	Step Pin Detail No.	Potted Busing Detail No.
986	0.165	132	129
All Holes	1/8 Pilot	134	129
Inboard Skin Plate, In-board Tab	0.165	132	129
Inboard Skin Plate, Out-board Tab	0.189	194	129
Center Skin Plate, In-board Tab	0.197	133	129
Center Skin Plate, Out-board Tab	0.125	134	129
Outboard Skin Plate Tabs	0.156	130	129

3. **DRILLING HOLES IN 74A180756 SKINS.** See figures 1, 4 and 5.

### Support Equipment Required

<b>Nomenclature</b>	<b>Part Number or Type Designation</b>
---------------------	----------------------------------------

Accessory Kit-Plate Sets, Hole Locating	RE374000002
-----------------------------------------	-------------

### Materials Required

<b>Nomenclature</b>	<b>Specification or Part Number</b>
Sealing Compound	MIL-S-83430, CLA-1/2
Sealing Compound	MIL-S-83430, CLB-2
Solder, Wire	Cerrobend

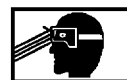
a. Remove damaged skin.

b. Tighten skin thickness adapters (detail 111) on bonded assembly to simulate thickness of skin, view A.

c. Position sequence A bonded assembly (details 11, 12, 17, or 20) in position on skin substructure and align edges for equal spacing, view B.

d. For sequence A bonded assembly (details 11, 12, 17, or 20) adjust bonded assembly (detail 12, 14, or 16) by loosening socket head cap screws (detail 107). Move bonded assembly (detail 12, 14, or 16) to best fit condition and tighten socket head cap screws (detail 107), view C.

e. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into substructure, view D.



Solder, Wire

11

f. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

g. Remove sequence A bonded assembly (details 11, 17, or 20).

h. Repeat steps b through f for sequence B bonded assembly (details 13, 14, 18, or 21).

i. Remove sequence B bonded assembly (details 13, 14, 18, or 21).

j. Repeat steps b through f for sequence C bonded assembly (details 15, 16, 19, or 22).

k. Remove sequence C bonded assembly (details 15, 16, 19, or 22).

l. Trim replacement skin.

m. Place replacement skin on work surface.

n. Retract skin thickness adapters (detail 111) on bonded assembly to allow bonded assembly to contact replacement skin, view E.

o. Position sequence A bonded assembly (detail 11, 12, 17, or 20) on replacement skin and align edges for equal spacing, view F.

p. Clamp bonded assembly to replacement skin.

q. Drill, ream and countersink hole pattern in replacement skin using applicable hole board and applicable repair number information given on figure 5.

r. Clamp bonded assembly to skin at various drilled holes, as required, using depot furnished bolts, nuts and washers, to hold skin in place, view G.

s. Remove sequence A bonded assembly (details 11, 12, 17, or 20).

t. Position sequence B bonded assembly (details 13, 14, 18, or 21) on replacement skin and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.

u. Repeat steps p, q, and r for sequence B bonded assembly (details 13, 14, 18, or 21).

v. Remove sequence B bonded assembly (details 13, 14, 18, or 21).

w. Position sequence C bonded assembly (details 15, 16, 19, or 22) on replacement skin and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.

x. Repeat steps p, q, and r for sequence C bonded assembly (details 15, 16, 19, or 22).

y. Remove sequence C bonded assembly (details 15, 16, 19, or 22).

z. Clean loose material from skin and skin area.

aa. Install skin.



Sealing Compound

6

(1) Fay seal skin and structure using MIL-S-83430, CLB-2 sealing compound (A1-F18AC-SRM-200, WP011 00).



Sealing Compound

6

(2) Install fasteners wet with MIL-S-83430, CLA-1/2 sealing compound (A1-F18AC-SRM-200, WP011 00).

ab. Apply finish system (A1-F18AC-SRM-500, WP027 00).

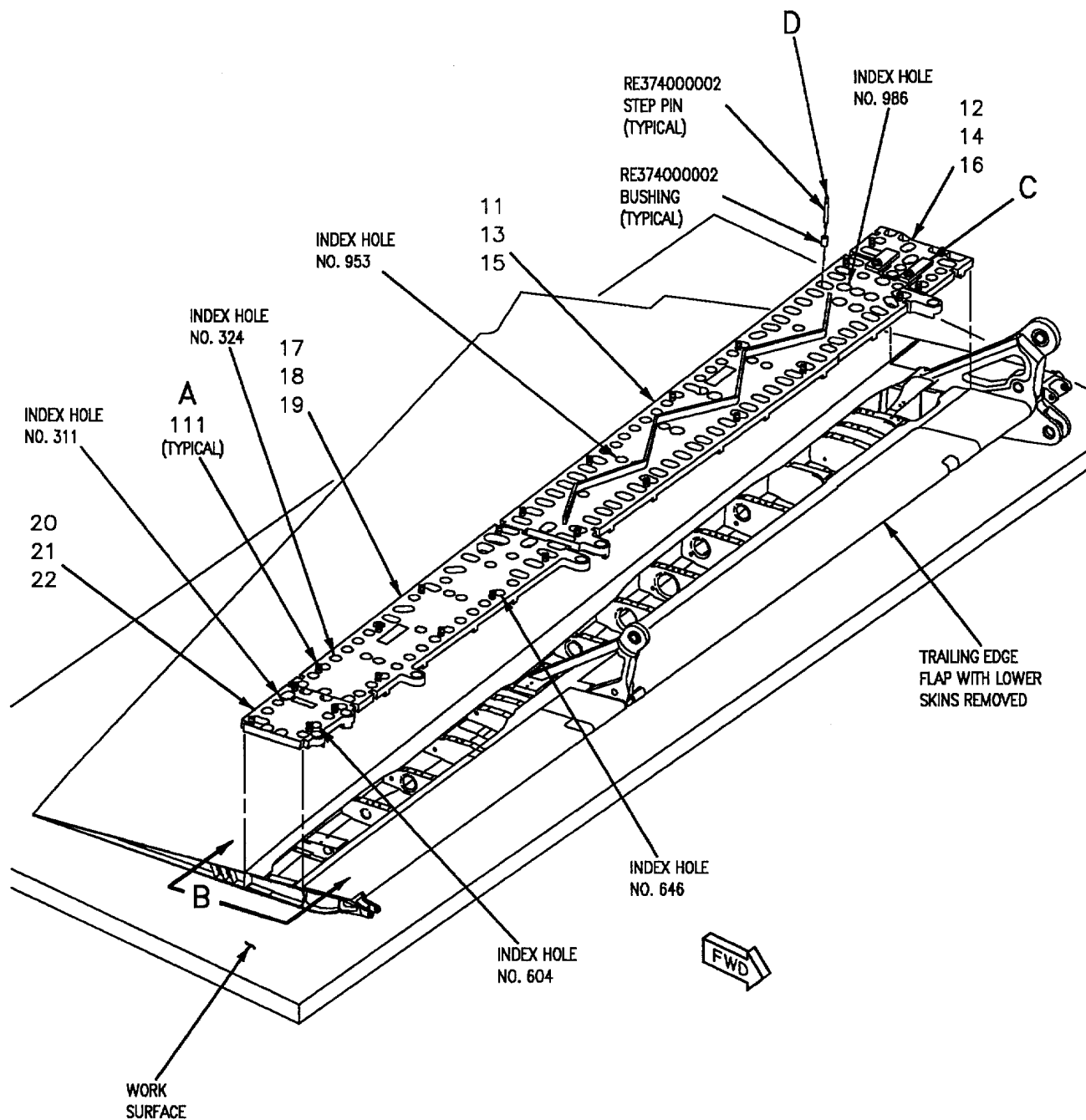
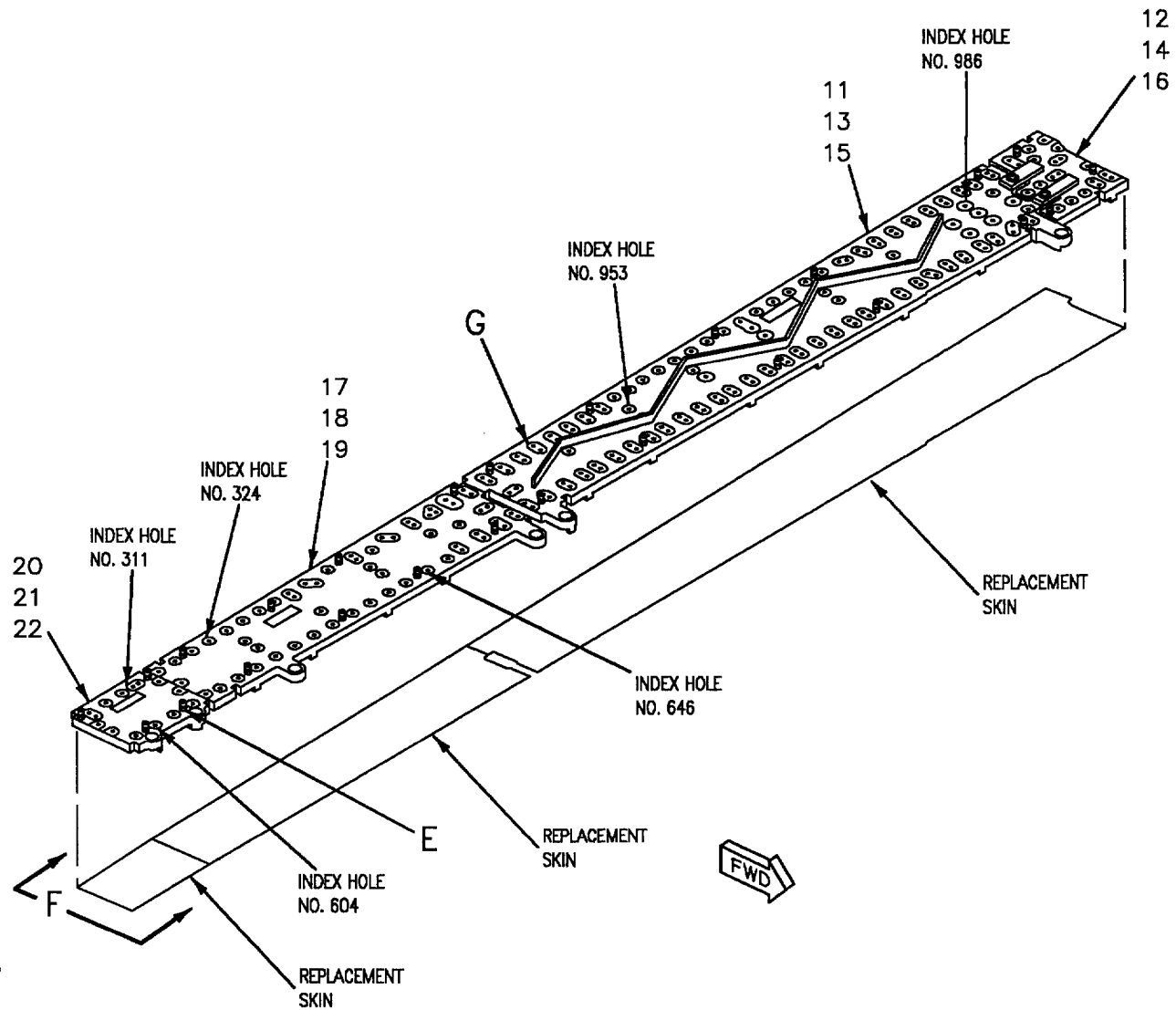


Figure 1. Installation of Plate Set for Drilling 74A180756 Skins (Sheet 1)

08060101





08060102

Figure 1. Installation of Plate Set for Drilling 74A180756 Skins (Sheet 2)

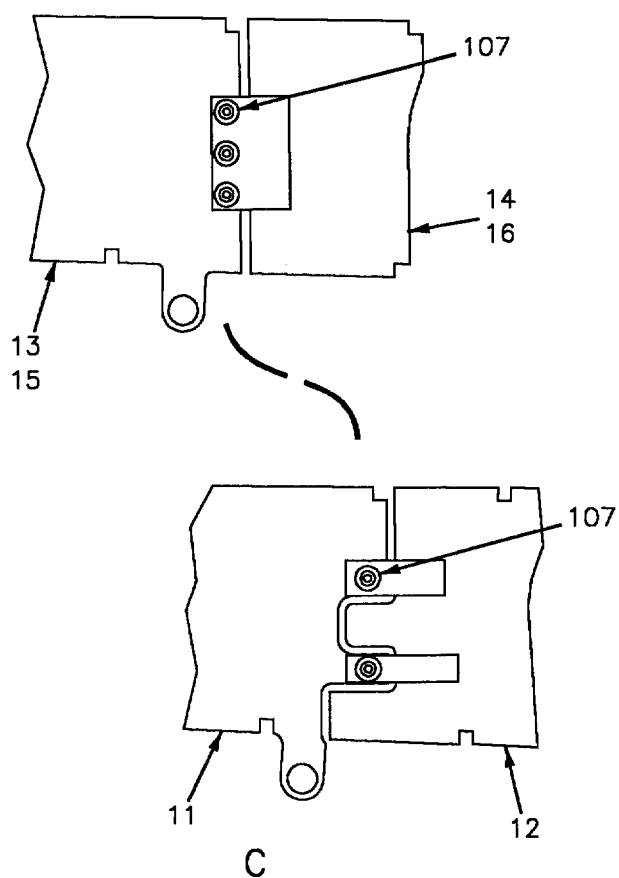
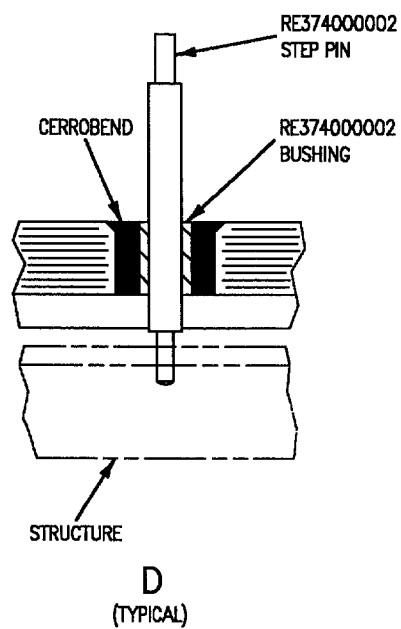
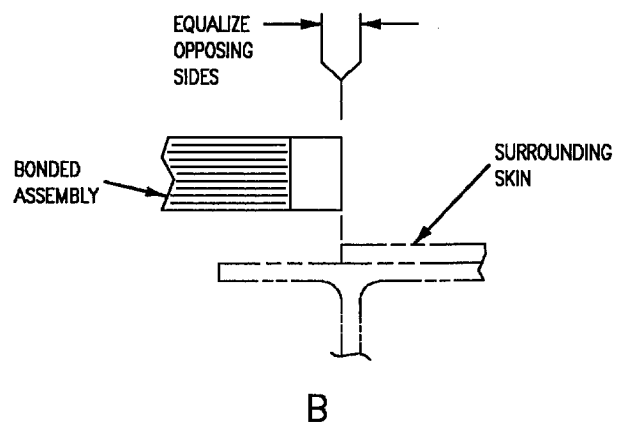
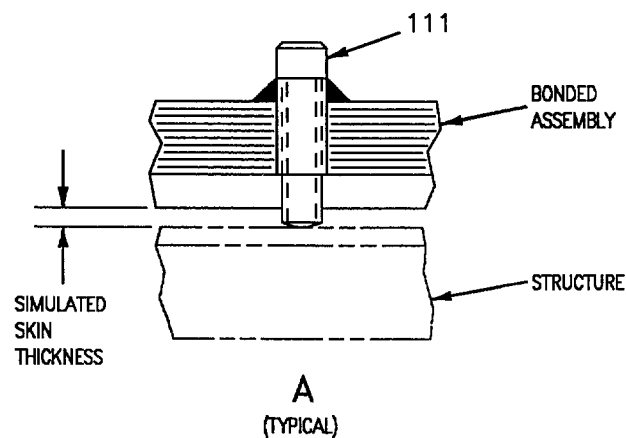


Figure 1. Installation of Plate Set for Drilling 74A180756 Skins (Sheet 3)

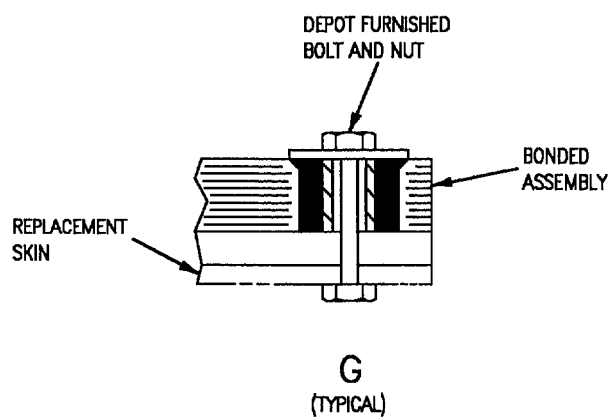
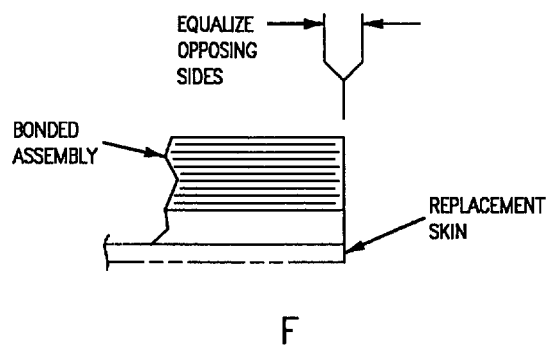
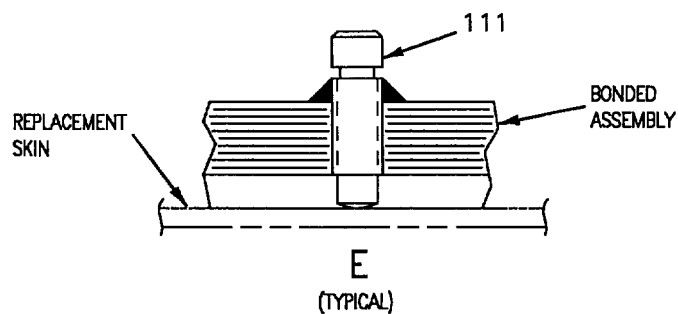


Figure 1. Installation of Plate Set for Drilling 74A180756 Skins (Sheet 4)

Detail No.	Name	Function
11, 12	Sequence A Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
13, 14	Sequence B Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
15, 16	Sequence C Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
17	Sequence A Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
18	Sequence B Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
19	Sequence C Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
20	Sequence A Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
21	Sequence B Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
22	Sequence C Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
107	Socket Head Cap Screw	Attaches and secures bonded assemblies (details 12, 14 and 16) to bonded assemblies (details 11, 13 and 15).
111	Skin Thickness Adapter	Simulates thickness of skin on structure.

Figure 1. Installation of Plate Set for Drilling 74A180756 Skins (Sheet 5)

#### 4. DRILLING HOLES IN 74A180756 SKIN SUB-STRUCTURE. See figures 2, 4 and 5.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002

### Materials Required

Nomenclature	Specification or Part Number
Sealing Compound	MIL-S-83430, CLA-1/2
Sealing Compound	MIL-S-83430, CLB-2
Solder, Wire	Cerrobend

- a. Remove skin.
- b. Remove and replace damaged substructure.
- c. Retract skin thickness adapters (detail 111) on bonded assembly to allow bonded assembly to contact skin, view A.
- d. Place skin on work surface.
- e. Position sequence A bonded assembly (details 11, 12, 17, or 20) in position on skin and align edges for equal spacing, view B.
- f. For sequence A bonded assembly (details 11, 12, 17, or 20) adjust bonded assembly (detail 12, 14, or 16) by loosening socket head cap screws (detail 107). Move bonded assembly (detail 12, 14, or 16) to best fit condition and tighten socket head cap screws (detail 107), view C.
- g. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into holes in skin, view D.



Solder, Wire



11

- h. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

- i. Remove sequence A bonded assembly (details 11, 17, or 20).
- j. Repeat steps c through h for sequence B bonded assembly (details 13, 14, 18, or 21).
- k. Remove sequence B bonded assembly (details 13, 14, 18, or 21).
- l. Repeat steps c through h for sequence C bonded assembly (details 15, 16, 19, or 22).
- m. Remove sequence C bonded assembly (details 15, 16, 19, or 22).
- n. Tighten skin thickness adapters (detail 111) on bonded assembly to simulate thickness of skin, view E.
- o. Position sequence A bonded assembly (detail 11, 12, 17, or 20) on structure and align edges for equal spacing, view F.
- p. Clamp bonded assembly to flap structure.
- q. Drill and ream hole pattern in replacement structure using applicable hole board and applicable repair number information given on figure 5.
- r. Clamp bonded assembly to structure at various drilled holes, as required, using depot furnished bolts, nuts and washers, to hold skin in place, figure 2, view G.
- s. Remove sequence A bonded assembly (details 11, 12, 17, or 20).
- t. Position sequence B bonded assembly (details 13, 14, 18, or 21) on structure and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.
- u. Repeat steps p, q and r for sequence B bonded assembly (details 13, 14, 18, or 21).
- v. Remove sequence B bonded assembly (details 13, 14, 18, or 21).
- w. Position sequence C bonded assembly (details 15, 16, 19, or 22) on replacement skin and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.
- x. Repeat steps p, q and r for sequence C bonded assembly (details 15, 16, 19, or 22).

y. Remove sequence C bonded assembly (details 15, 16, 19, or 22).

z. Clean loose material from structure and structure area.

aa. Install skin.



Sealing Compound

6

(1) Fay seal skin and structure using MIL-S-83430, CLB-2 sealing compound (A1-F18AC-SRM-200, WP011 00).

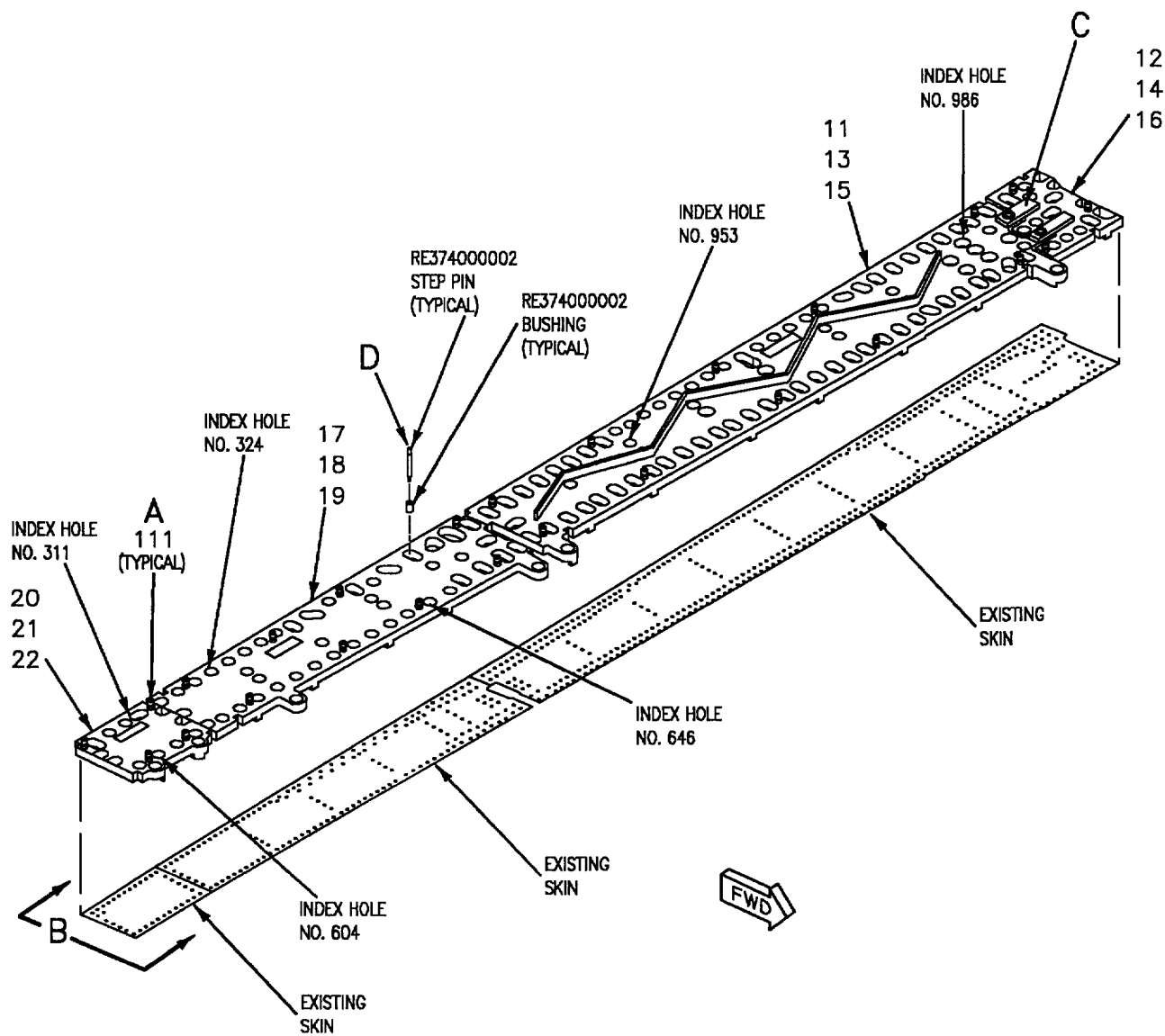


Sealing Compound

6

(2) Install fasteners wet with MIL-S-83430, CLA-1/2 sealing compound (A1-F18AC-SRM-200, WP011 00).

ab. Apply finish system (A1-F18AC-SRM-500, WP027 00).



08060201

Figure 2. Installation of Plate Set for Drilling Substructure (Sheet 1)

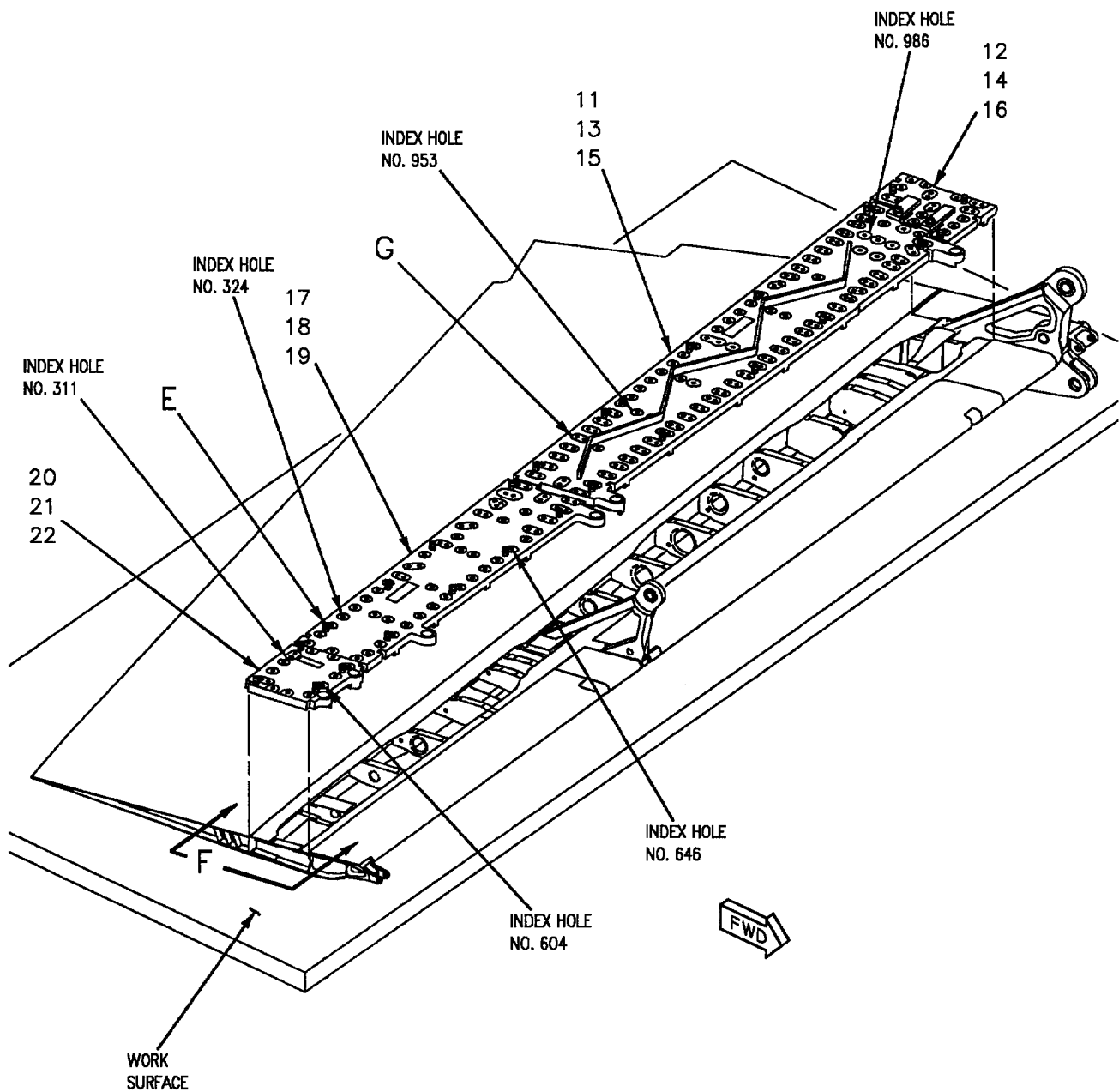


Figure 2. Installation of Plate Set for Drilling Substructure (Sheet 2)



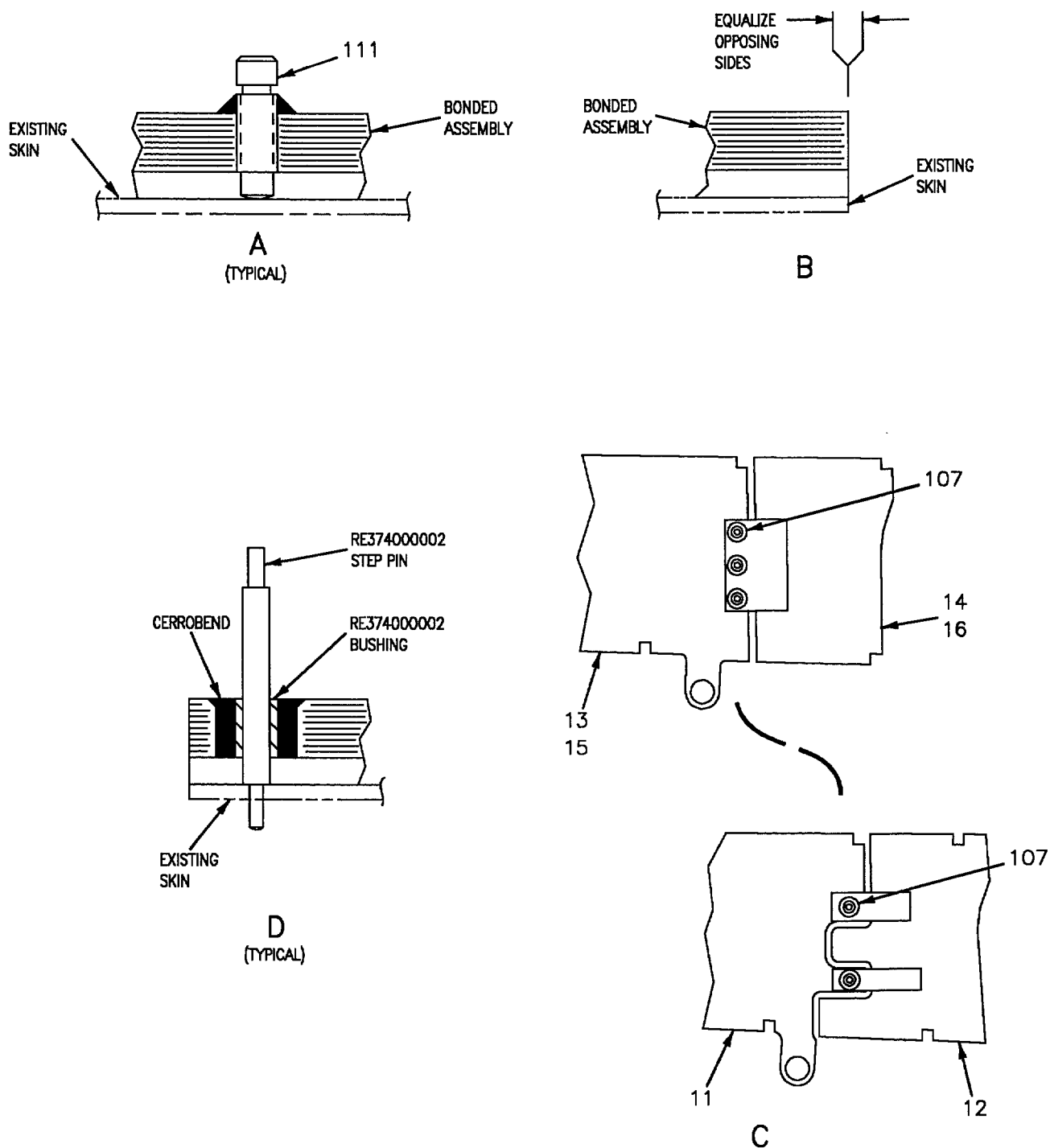


Figure 2. Installation of Plate Set for Drilling Substructure (Sheet 3)

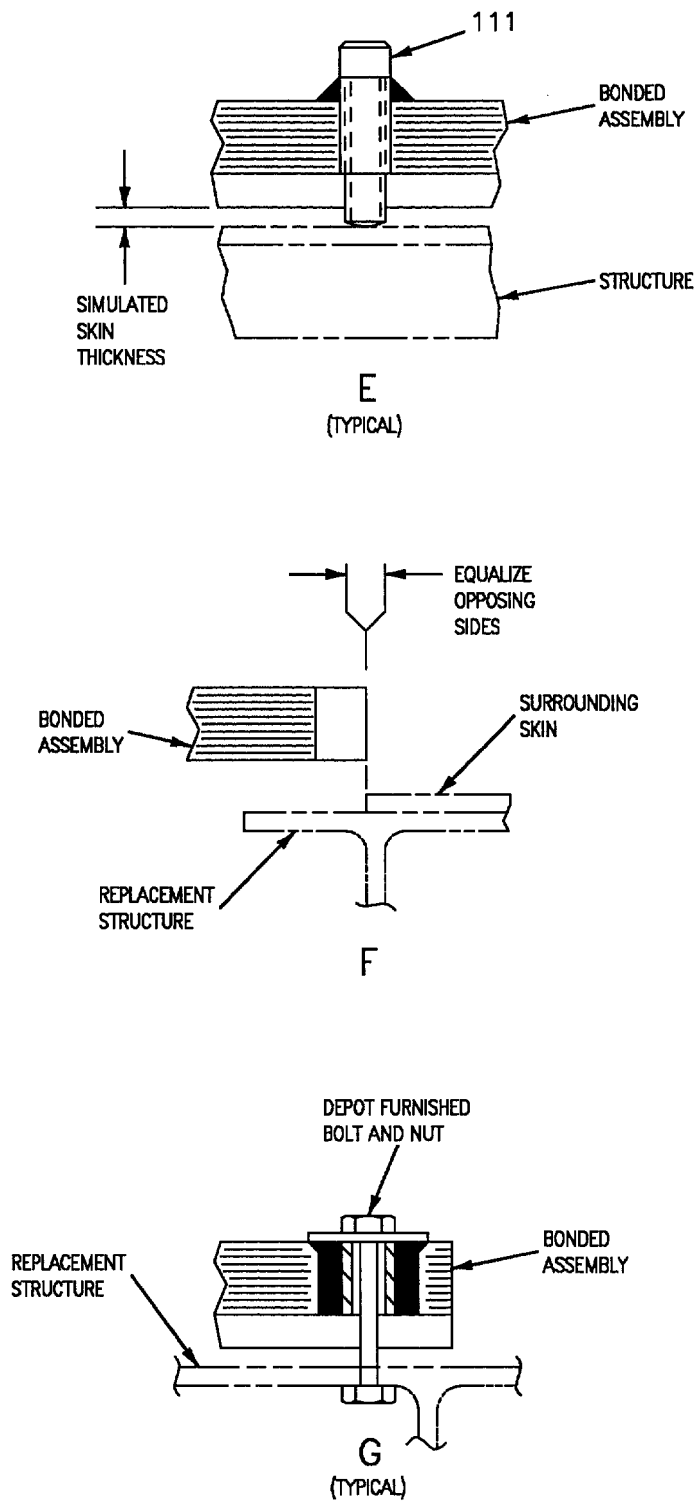


Figure 2. Installation of Plate Set for Drilling Substructure (Sheet 4)

Detail No.	Name	Function
11, 12	Sequence A Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
13, 14	Sequence B Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
15, 16	Sequence C Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
17	Sequence A Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
18	Sequence B Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
19	Sequence C Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
20	Sequence A Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
21	Sequence B Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
22	Sequence C Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
107	Socket Head Cap Screw	Attaches and secures bonded assemblies (details 12, 14, and 16) to bonded assemblies (details 11, 13, and 15).
111	Skin Thickness Adapter	Simulates thickness of skin on structure.

Figure 2. Installation of Plate Set for Drilling Substructure (Sheet 5)

## 5. DRILLING HOLES IN 74A180756 SKINS AND SUBSTRUCTURE. See figures 3, 4 and 5.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002

### Materials Required

Nomenclature	Specification or Part Number
Sealing Compound	MIL-S-83430, CLA-1/2
Sealing Compound	MIL-S-83430, CLB-2
Solder, Wire	Cerrobend

a. Remove damaged skin.

b. Remove and replace damaged substructure.

c. Lay out fastener pattern on substructure or use an undamaged skin as a template to mark fastener pattern on substructure.

(1) If undamaged skin is used as a template, mark location of each fastener hole on structure through existing fastener holes of skin.

(2) Inspect marked hole locations for correct edge distance.

d. Pilot drill hole pattern in structure.

e. Remove fasteners from surrounding skin, to mate tabs on bonded assembly, see sheet 1.

f. Tighten skin thickness adapters (detail 111) on bonded assembly to simulate thickness of skin, view A.

g. Position sequence A bonded assembly (details 11, 12, 17, or 20) in position on skin substructure and align edges for equal spacing, view B.

h. For sequence A bonded assembly (details 11, 12, 17, or 20) adjust bonded assembly (detail 12, 14, or 16) by loosening socket head cap screws (detail 107). Move bonded assembly (detail 12, 14, or 16) to best fit condition and tighten socket head cap screws (detail 107), view C.

i. Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into substructure, view D.

j. Install applicable RE374000002 step pins and bushings through outer tabs of bonded assembly and into fastener holes, view E.



Solder, Wire

11

k. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

l. Remove sequence A bonded assembly (details 11, 17, or 20).

m. Repeat steps f through k for sequence B bonded assembly (details 13, 14, 18, or 21).

n. Remove sequence B bonded assembly (details 13, 14, 18, or 21).

o. Repeat steps f through k for sequence C bonded assembly (details 15, 16, 19, or 22).

p. Remove sequence C bonded assembly (details 15, 16, 19, or 22).

q. Trim replacement skin.

r. Position replacement skin in place on structure.

s. Retract skin thickness adapters (detail 111) on bonded assembly to allow bonded assembly to contact replacement skin, view F.

t. Position sequence A bonded assembly (details 11, 12, 17, or 20) on skin and pin at two outer tab hole locations using RE374000002 step pins per Table 1, view E.

u. Clamp bonded assembly to replacement skin and structure.

v. Drill, ream and countersink hole pattern in replacement skin and substructure using applicable hole board and applicable repair number information given on figure 5.

w. Clamp bonded assembly to skin and structure at various drilled holes, as required, using

depot furnished bolts, nuts and washers, to hold skin in place, figure 3, view G.

x. Remove sequence A bonded assembly (details 11, 12, 17, or 20).

y. Position sequence B bonded assembly (details 13, 14, 18, or 21) on replacement skin and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.

z. Repeat steps u, v and w for sequence B bonded assembly (details 13, 14, 18, or 21).

aa. Remove sequence B bonded assembly (details 13, 14, 18, or 21).

ab. Position sequence C bonded assembly (details 15, 16, 19, or 22) on replacement skin and pin in place at index holes (marked IH) using RE374000002 step pins per Table 1.

ac. Repeat steps u, v, and w for sequence C bonded assembly (details 15, 16, 19, or 22).

ad. Remove sequence C bonded assembly (details 15, 16, 19, or 22).

ae. Clean loose material from skin and skin area.

af. Reinstall fasteners in surrounding skin that were removed to mate with outer tabs.

ag. Install skin.



Sealing Compound

6

(1) Fay seal skin and structure using MIL-S-83430, CLB-2 sealing compound (A1-F18AC-SRM-200, WP011 00).

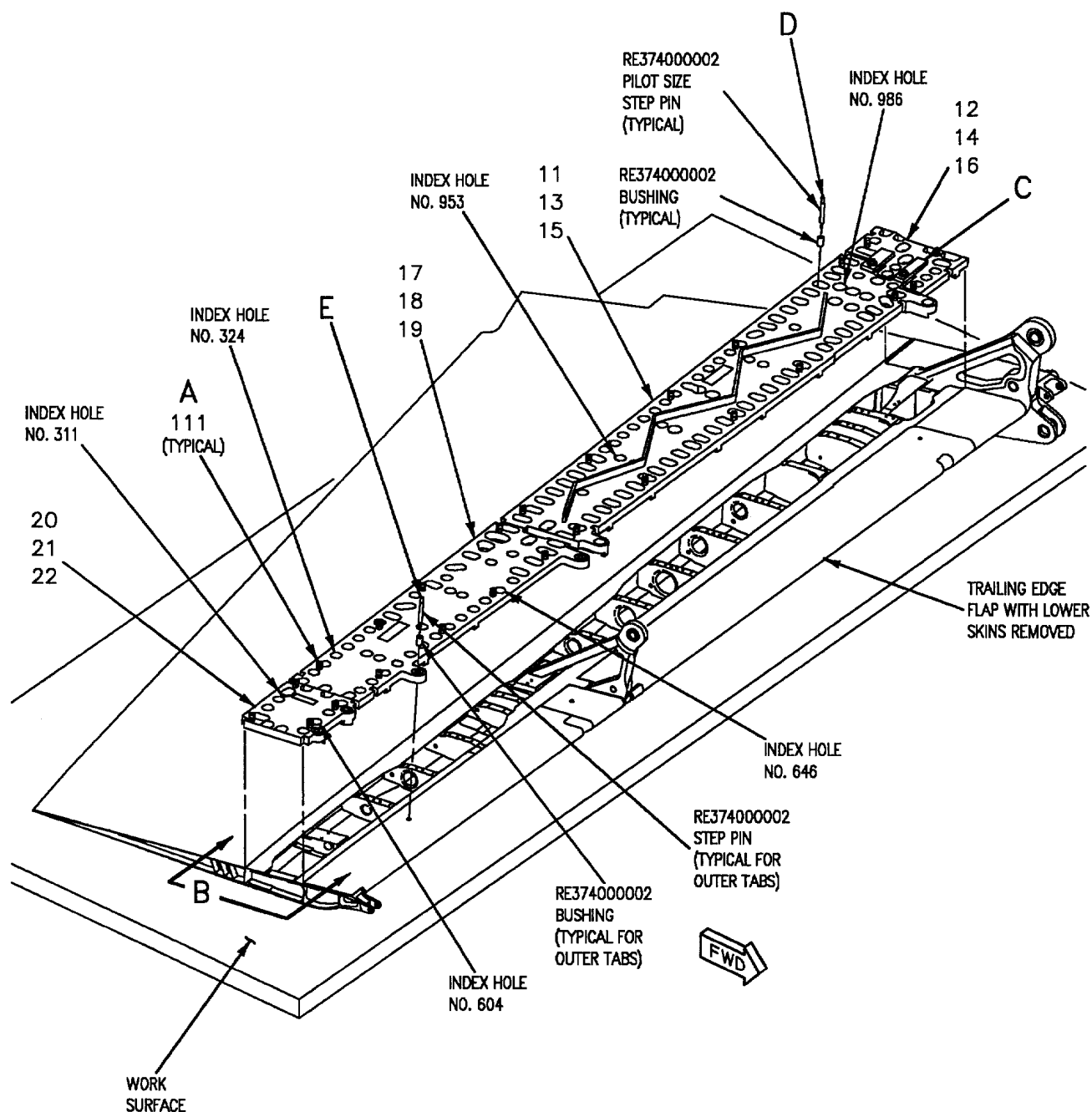


Sealing Compound

6

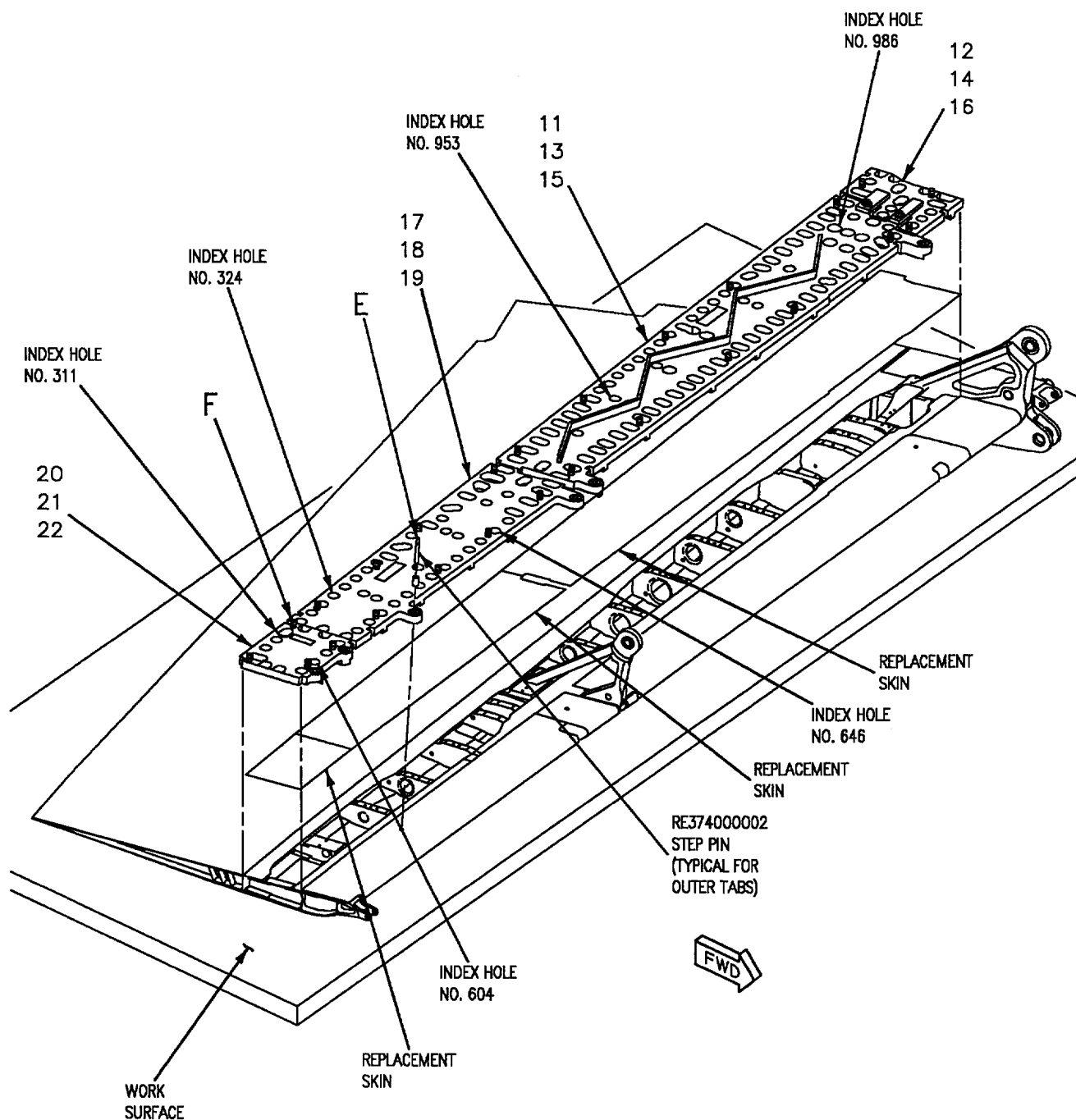
(2) Install fasteners wet with MIL-S-83430, CLA-1/2 sealing compound (A1-F18AC-SRM-200, WP011 00).

ah. Apply finish system (A1-F18AC-500, WP027 00).



08060301

Figure 3. Installation of Plate Set for Drilling 74A180756 Skins and Substructure (Sheet 1)



08060302

Figure 3. Installation of Plate Set for Drilling 74A180756 Skins and Substructure (Sheet 2)

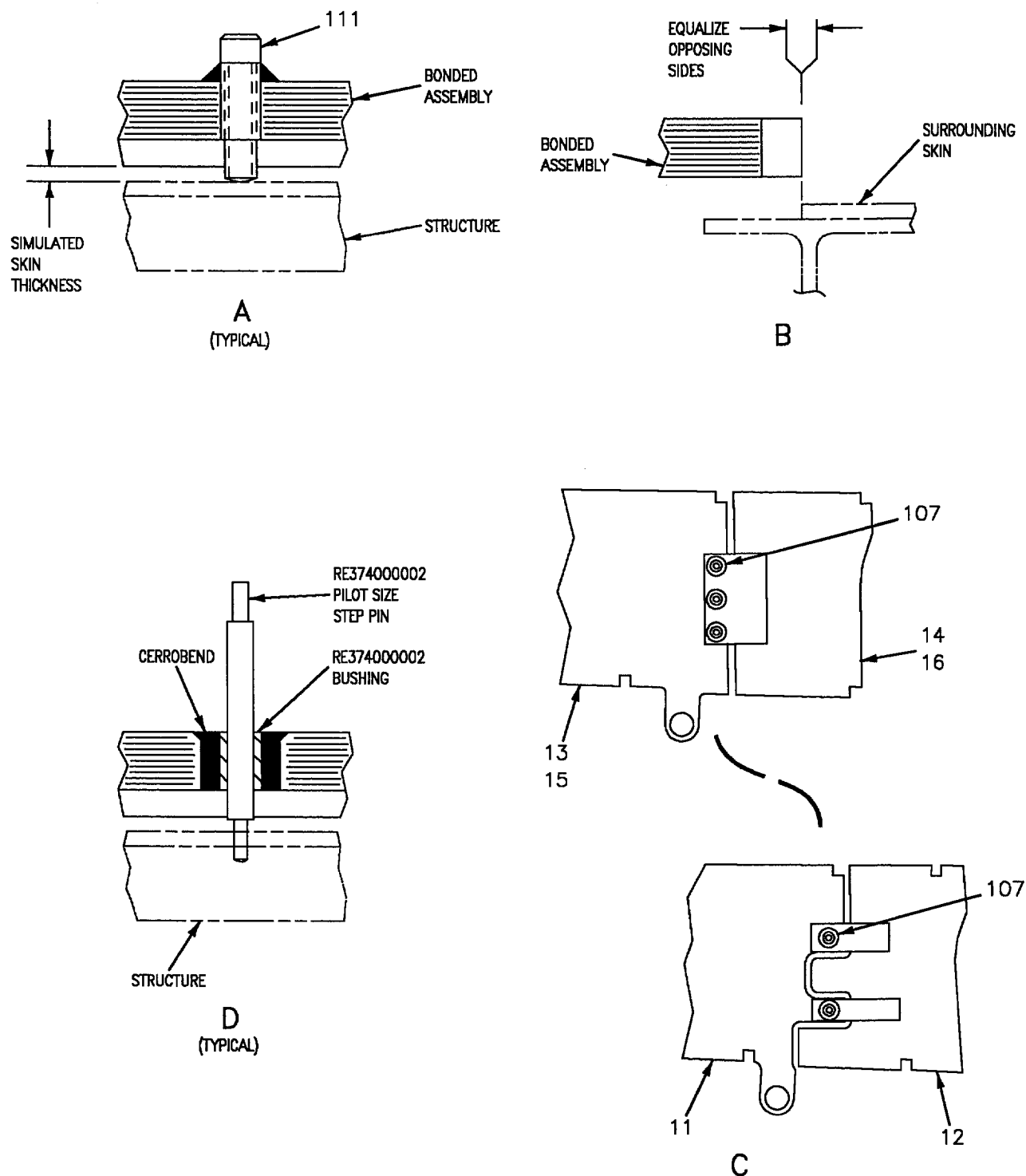


Figure 3. Installation of Plate Set for Drilling 74A180756 Skins and Substructure  
(Sheet 3)



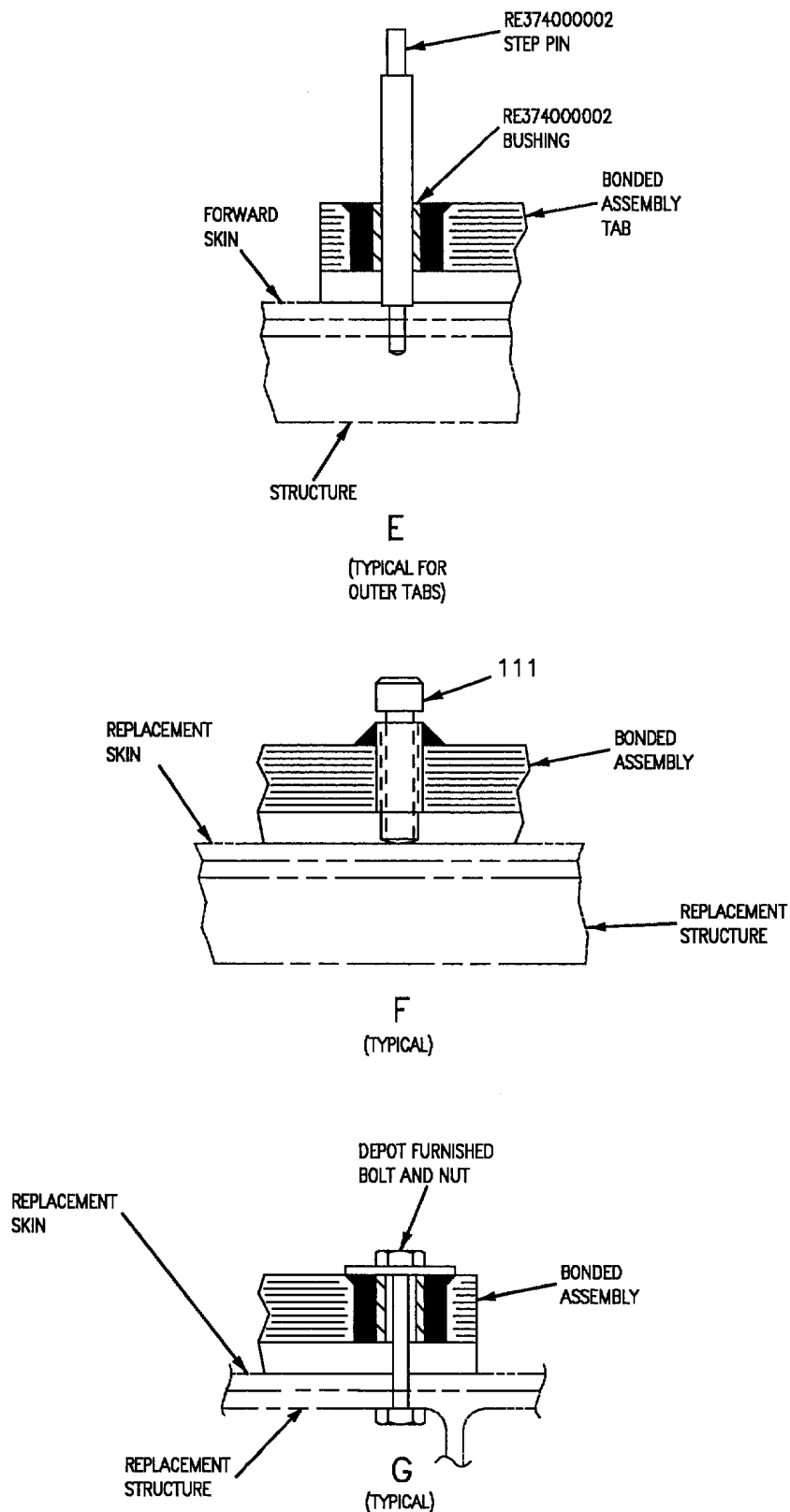


Figure 3. Installation of Plate Set for Drilling 74A180756 Skins and Substructure (Sheet 4)

08060304

Detail No.	Name	Function
11, 12	Sequence A Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
13, 14	Sequence B Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
15, 16	Sequence C Bonded Assembly	Used to locate and drill hole pattern in inboard skin and structure.
17	Sequence A Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
18	Sequence B Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
19	Sequence C Bonded Assembly	Used to locate and drill hole pattern in center skin and structure.
20	Sequence A Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
21	Sequence B Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
22	Sequence C Bonded Assembly	Used to locate and drill hole pattern in outboard skin and structure.
107	Socket Head Cap Screw	Attaches and secures bonded assemblies (details 12, 14 and 16) to bonded assemblies (details 11, 13 and 15).
111	Skin Thickness Adapter	Simulates thickness of skin on structure.

Figure 3. Installation of Plate Set for Drilling 74A180756 Skins and Substructure  
(Sheet 5)

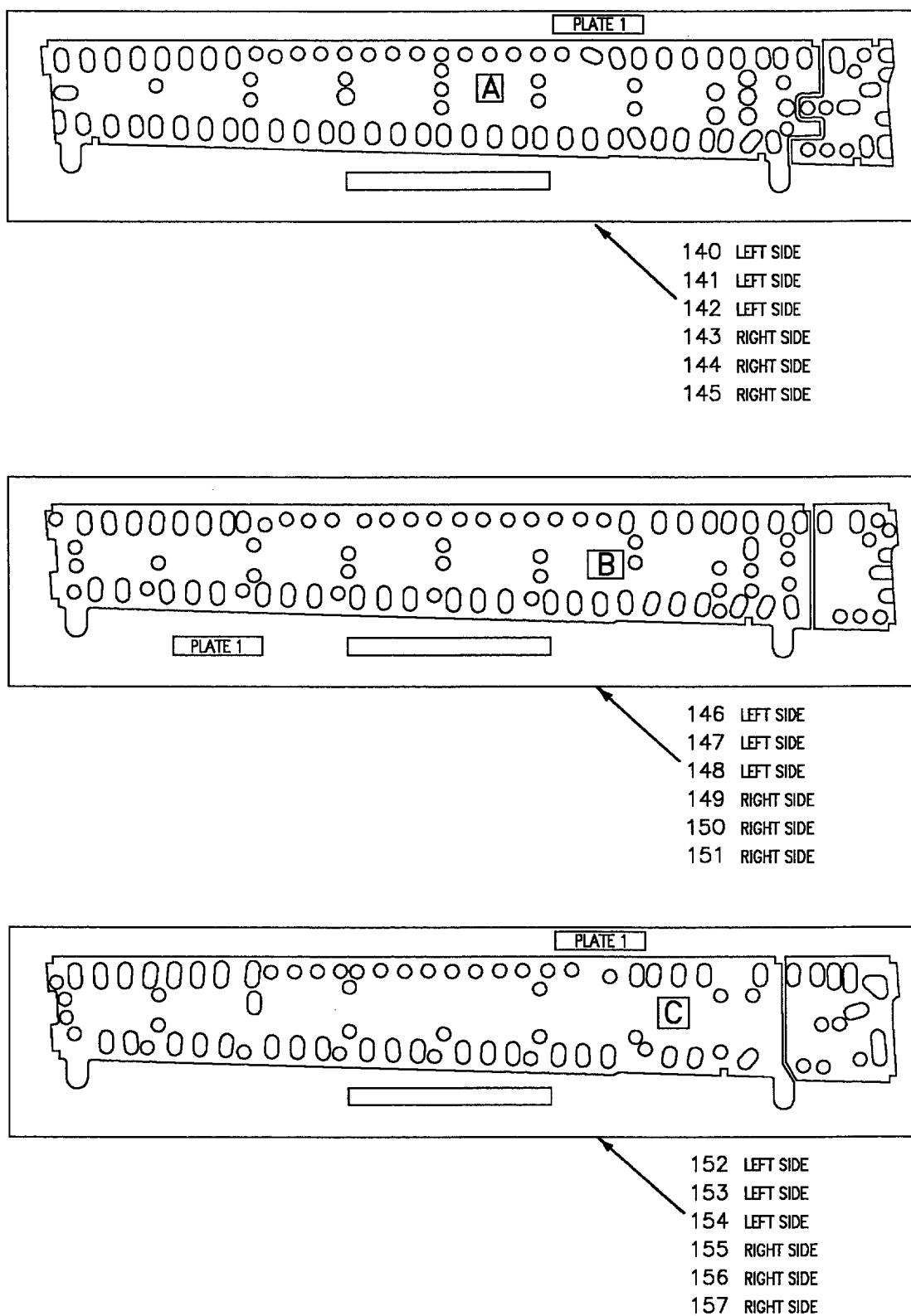


Figure 4. Hole Boards (Sheet 1)

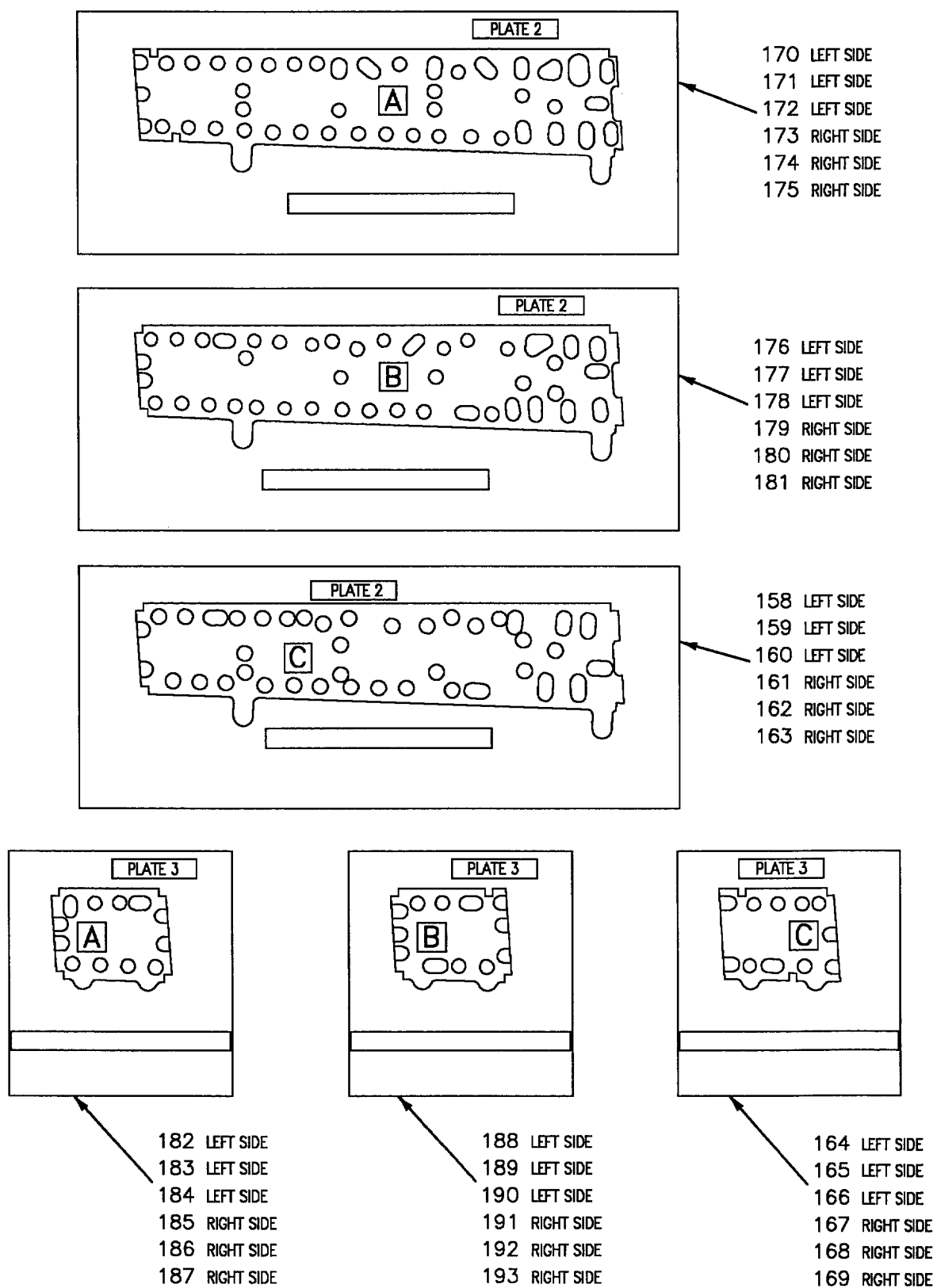


Figure 4. Hole Boards (Sheet 2)

Detail No.	Name	Function
L140, R143 L141, R144 L142, R145	Hole Board	Sequence A reference board for inboard skin.
L146, R149 L147, R150 L148, R151	Hole Board	Sequence B reference board for inboard skin.
L152, R155 L153, R156 L154, R157	Hole Board	Sequence C reference board for inboard skin.
L170, R173 L171, R174 L172, R175	Hole Board	Sequence A reference board for center skin.
L176, R179 L177, R180 L178, R181	Hole Board	Sequence B reference board for center skin.
L158, R161 L159, R162 L160, R163	Hole Board	Sequence C reference board for center skin.
L182, R185 L183, R186 L184, R187	Hole Board	Sequence A reference board for outboard skin.
L188, R191 L189, R192 L190, R193	Hole Board	Sequence B reference board for outboard skin.
L164, R167 L165, R168 L166, R169	Hole Board	Sequence C reference board for outboard skin.

Figure 4. Hole Boards (Sheet 3)

## REPAIR NUMBER 33

HOLE COLOR CODE	HOLE SIZE	POTTING		DRILLING			COUNTERSINK SKIN		
		LINER BUSHING	STEP PIN	DRILLING MACHINE	TRAVELER BUSHING	TFIM 25.0253 CUTTER	MICROSTOP	COUNTERSINK BODY TFIM 25.0120	CARBIDE INSERT TFIM 25.0121
SILVER	5/32	129	134	2000 RPM PISTOL GRIP	---	(0.1250)	---	---	---
		129	132		136	-243 (0.1650)	STANDARD	-161	-492
ORANGE	3/16	129	133	2000 RPM PISTOL GRIP	139	-289 (0.1998)	STANDARD	-196	-492

## REPAIR NUMBER 34 – SUBSTRUCTURE

HOLE COLOR CODE	HOLE SIZE	POTTING		DRILLING PRE COLD WORK			COLD WORK
		LINER BUSHING	STEP PIN	DRILLING MACHINE	TRAVELER BUSHING	TFIM 25.0253 CUTTER	USE RE174000002-1
ORANGE	3/16	129	134	2000 RPM PISTOL GRIP	---	(0.1250)	---
		129	133		137	-177 (0.1770)	

## REPAIR NUMBER 34 – SKIN AND SUBSTRUCTURE

HOLE COLOR CODE	HOLE SIZE	FIRST PASS REAM			SECOND PASS REAM			COUNTERSINK SKIN			
		DRILLING MACHINE	TRAVELER BUSHING	TFIM 25.116 REAMER	DRILLING MACHINE	TRAVELER BUSHING	TFIM 25.116 REAMER	DRILLING MACHINE	MICROSTOP	COUNTERSINK BODY TFIM 25.0120	CARBIDE INSERT TFIM 25.0121
ORANGE	3/16	500 RPM PISTOL GRIP	---	---	500 RPM PISTOL GRIP	---	---	2000 RPM PISTOL GRIP	---	---	---
			138	-1897		139	-1992		STANDARD	-196	-492
NOTE											
1. REAM SKIN AND SUBSTRUCTURE AT THE SAME TIME, USING TWO PASSES.											

## REPAIR NUMBER 35

HOLE COLOR CODE	HOLE SIZE	POTTING		DRILLING			COUNTERSINK SKIN		
		LINER BUSHING	STEP PIN	DRILLING MACHINE	TRAVELER BUSHING	TFIM 25.0253 CUTTER	MICROSTOP	COUNTERSINK BODY TFIM 25.0120	CARBIDE INSERT TFIM 25.0121
SILVER	5/32	129	134	2000 RPM PISTOL GRIP	---	(0.1250)	---	---	---
		129	130		135	-161 (0.1610)	STANDARD	-158	-492

Figure 5. Repair Number Detail Charts

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ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

AILERON SHROUD

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## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Maintenance Fixture, RE174170103 Aileron Shroud .....	WP009 01
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Aileron Shroud, Water In Honeycomb .....	WP011 00
Aileron Shroud, Metal to Metal Bondline .....	WP012 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Locating Blind Holes and Trim Lines .....	WP004 03
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class X Damage Repair .....	WP005 00
Water Removal .....	WP005 00
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class I Damage Repair .....	WP022 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class II Damage Repair .....	WP023 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class III Damage Repair .....	WP024 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IV Damage Repair .....	WP025 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class V Damage Repair .....	WP026 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VI Damage Repair .....	WP027 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VII Damage Repair .....	WP028 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VIII Damage Repair .....	WP029 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IX Damage Repair .....	WP030 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum and Titanium Sheet, Formed Structure. ....	WP033 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00

## Reference Material (Continued)

System Maintenance with IPB, Integrated Flight Controls .....	A1-F18AC-570-300
Aileron (84MPU525 or 84MPV526 or Aileron Shroud (84MPU527 or 84MPV528) Electronic Flight Control System .....	WP010 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509
Structural Hardware .....	NAVAIR 01-1A-8

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## Record of Applicable Technical Directives

None

## Support Equipment Required

None

## Materials Required

None

## 1. ALUMINUM SKIN AND ALUMINUM HONEYCOMB CORE.

2. DAMAGE EVALUATION. See figures 1, 3, and 4. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

3. Negligible Damage. See figures 1 and 3. Negligible damage is damage which does not exceed the type and limits listed below and may be allowed to exist as is.

a. Smooth dents free of sharp corners and abrasions.

(1) Depth is no more than 0.015 inch.

(2) Diameter is not more than 0.5 inch.

(3) No more than three dents occur in any 3 inch diameter circle.

(4) No more than six dents occurring in any 10 inch diameter circle.

(5) Dents occurring in a line and spaced closer than 1-1/2 dent diameter and does not exceed 3 inches in length.



b. Voids and separations in the adhesive along the length of the bend radius of structural part and of edge member to core to which the core is bonded.

(1) The width is not wider than the bend radius.

(2) Voids and separations do not exceed 2 square inches in any 10 square inches.

(3) Voids and separations do not exceed more than five percent of the total bonded area.

**4. Repairable Damage.** See figures 1 and 4. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of aircraft.

5. Voids or Unbonds Between Skin and Core, Class I Damage. See figure 4, section A. Class I damage is damage which does not exceed the limits listed below:

a. Diameter is 4 inches or less.

b. Area of damage does not exceed four percent of bonded area.

6. Dents Without Honeycomb Core Damage, Class II Damage. See figure 4, section B. Class II damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inches.

c. No crushed core or unbond.

7. Dents With Honeycomb Core Damage, Class III Damage. See figure 4, section C. Class III damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inch.

c. May have crushed core or unbonds.

8. Damage Less Than 1.5 Inches Length or Diameter to One Skin, Class IV Damage. See figure 4, section D. Class IV damage is damage which does not exceed the limits listed below:

a. Damage to one skin only.

b. Length or diameter does not exceed 1.5 inches.

c. Core may or may not be damaged.

9. Damage More Than 1.5 Inches Length or Diameter Up to 4.0 Inches Maximum, to One Skin, Class V Damage. See figure 4, Section E. Class V damage is damage which does not exceed the limits listed below:

a. Damage to one skin only.

b. Length or diameter is 1.5 to 4.0 inches.

c. Core damage of any level.

10. Damage Less Than 1.5 Inches Length or Diameter, to Both Skins, Class VI Damage. See figure 4, section F. Class VI damage is damage which does not exceed the limits listed below:

a. Damage may be to both skins.

b. Length or diameter does not exceed 1.5 inches.

c. Core damage of any level.

11. Damage More Than 1.5 Inches Length or Diameter, Up to 4.0 Inches Maximum to Both Skins, Class VII Damage. Class VII damage includes cracks, bulges, punctures and sharp dents. See figure 3, section G. Class VII damage is damage which does not exceed the limits listed below:

a. Damage is to both skins.

b. Crack is 1.5 to 4.0 inches in length.

c. Bulges, punctures, and dents can be enclosed in a circle more than 1.5 inches diameter but less than 4.0 inches diameter.

d. Core damage of any kind exists.

12. Structure to Skin or Honeycomb Core, Void or Unbond, Class VIII Damage. See figure 4, section H. Inspect for metal to metal unbonds (A1-F18AC-SRM-300, WP012 00). Class VIII damage is damage which does not exceed the limits listed below:

a. Between skin and edge member, not extending into core.

b. Damage may or may not be open to the edge.

c. Voids between edge member and core.

13. Honeycomb Core Splice, Void or Unbond, Class IX Damage. See figure 4, section J. Class IX damage is damage that occurs at the honeycomb core splice line.

14. Water in Honeycomb Core, Class X Damage. Inspect for water in honeycomb core (A1-F18AC-SRM-300, WP011 00). Class X damage is water trapped in honeycomb core.

15. **REPAIRS.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair damage per Class IV or Class V damage. Class I, II, III, IV, VI, VIII, IX, X are organizational maintenance. Classes V and VII are intermediate maintenance. Repair damages by the procedures referenced below:

a. Repair class I damage and install patch (A1-F18AC-SRM-250, WP022 00).

b. Repair class II damage (A1-F18AC-SRM-250, WP023 00).

c. Repair class III damage and install patch (A1-F18AC-SRM-250, WP024 00).

d. Repair class IV damage and install patch (A1-F18AC-SRM-250, WP025 00).

e. Repair class V damage and install patch (A1-F18AC-SRM-250, WP026 00).

f. Repair class VI damage and install patch (A1-F18AC-SRM-250, WP027 00).

g. Repair class VII damage and install patch (A1-F18AC-SRM-250, WP028 00).

h. Repair class VIII damage (A1-F18AC-SRM-250, WP029 00).

i. Repair class IX damage and install patch (A1-F18AC-SRM-250, WP030 00).

j. Repair class X damage (A1-F18AC-SRM-250, WP005 00).

## 16. METAL SKINS AND STRUCTURE.

### NOTE

Repair data for aileron shroud seals refer to Damage Evaluation (WP013 00).

17. **DAMAGE EVALUATION.** See figures 1 and 2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits below and cold worked holes require depot engineering disposition.

18. **Negligible Damage.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index, figure 1.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

19. **Repairable Damage.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

### NOTE

The limits in table 2 apply after blending the damage.

a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fastener diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, over structure, only one repair per land.

e. Dents exceeding the limits of table 1 must be repaired.

20. **REPAIRS.** Type of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repair type definition are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

21. **Permanent Repairs.**

22. Scratches, Nicks, Gouges, or Corrosion. Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If after blending, the damage limits of table 2 are exceeded, repair aluminum sheet. Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

a. Scratches - make crack or edge repairs.

b. Nicks, gouges, or corrosion - make hole or edge repair.

23. Cracks.

a. In repair zone A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair cracks free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zone A4, repair cracks to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zone A4, install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

24. Holes.

a. In repair zone A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair holes free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair holes across structure and land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4, make repair.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zone A4, repair holes to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zone A4, install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

25. Edge. In repair zone A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

26. Dents.

a. In repair zone A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair dents free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

c. In repair zone A4, repair dents across structure and land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4, make repair.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).



























d. In repair zone A4, repair dents to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(3) Refinish repaired area (NAVAIR 01-1A-509).

(2) In repair zone A4, install repair one through six. Select the repair that can be adapted to the damaged part.

### Table 1. Negligible Damage Limits

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1) 	Wiper Zone A3	0.063	0.002	0.002	100%	0.030	10%
Fig 1 (5)	Skin Zone A4	0.037	0.0006	0.0006	100%	0.018	
	Zone B4	0.037	0.0006	0.0006	100%	0.018	
		0.020	0.0006	0.0006	100%	0.018	
	Zone C4	0.100	0.0006	0.0006	100%	0.018	
Fig 1 (11)	Frame Zone A4		0.0006	0.0006	100%		N/A
	Zone B4		0.0006	0.0006	100%		N/A
	Zone C4		0.0006	0.0006	100%		N/A
Fig 1 (12)	Skin Zone A4	0.040	0.0006	0.0006	100%	0.020	
	Zone B4	0.040	0.0006	0.0006	100%	0.020	
		0.013	0.0006	0.0006	100%	0.020	
	Zone C4	0.040	0.0006	0.0006	100%	0.020	
Fig 1 (13)	Arm Zone B4		0.0006	0.0006	100%		N/A
	Zone C4		0.0006	0.0006	100%		N/A
Fig 1 (14)	Arm Zone B4		0.0006	0.0006	100%		N/A
	Zone C4		0.0006	0.0006	100%		N/A
Fig 1 (15) 	Hinge Zone B4		0.001	0.001	100%		N/A

## NOTES






















**1** Various thickness.

**2** None allowed.


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
4 161520 THRU 161944.


### Table 2. Repairable Damage Limits After Blending

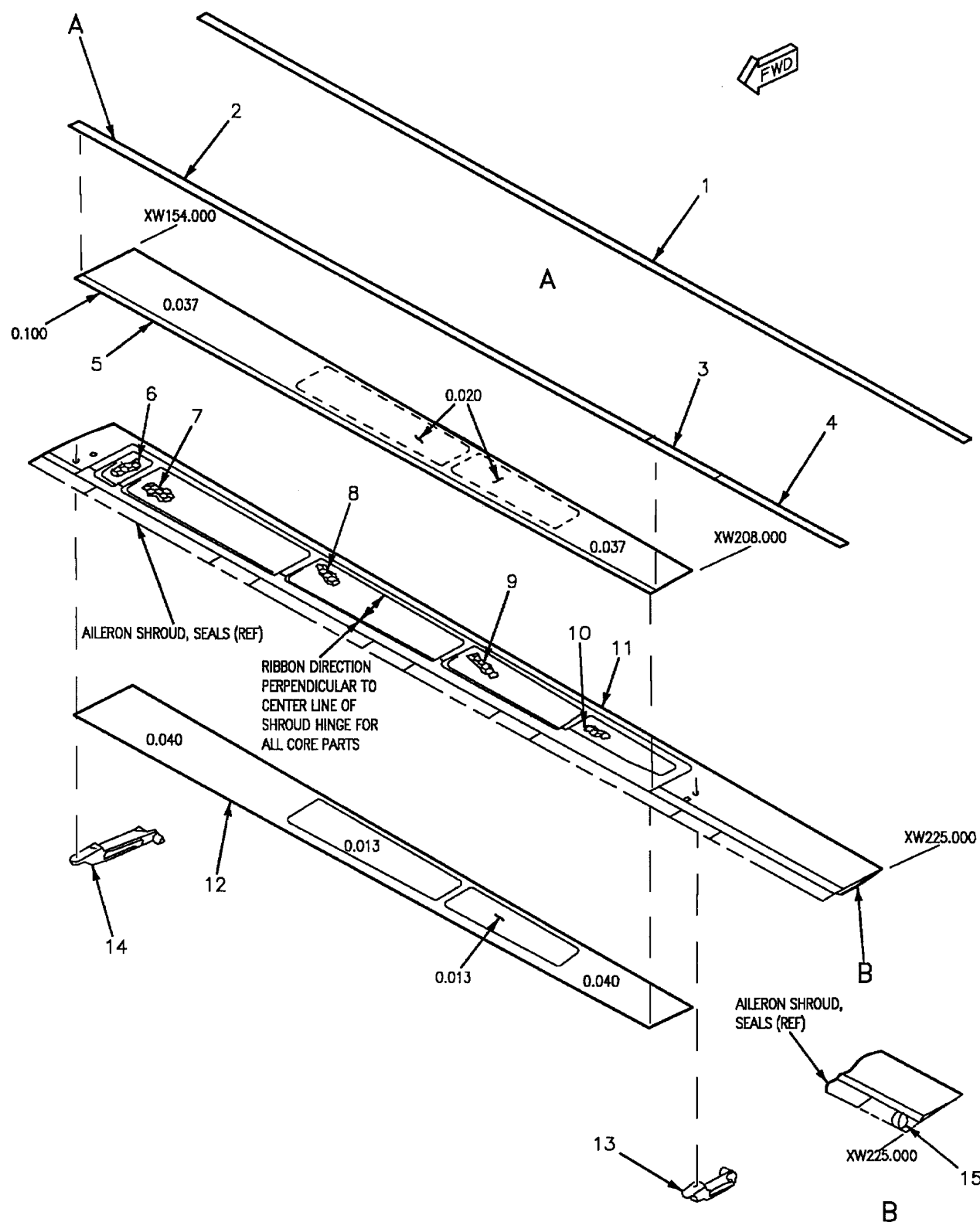
Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (1)	Wiper Zone A3	0.063	0.080	0.012	0.012	100%	0.012	100%
Fig 1 (5)	Skin Zone A4	0.037	0.060	0.007	0.007		0.007	
	Zone B4	0.037	0.060	0.007	0.007		0.007	
		0.020	0.060	0.004	0.004		0.007	
	Zone C4	0.100	0.060	0.0006	0.0006	100%	0.0006	100%
Fig 1 (11)	Frame Zone A4		0.030	0.020	0.020	4%	0.020	4%
		0.190	0.010	0.010	0.010	100%	0.010	100%
	Zone B4		0.030	0.020	0.020	4%	0.020	4%
	Zone C4		0.0006	0.0006	0.0006	100%	0.0006	100%
Fig 1 (12)	Skin Zone A4	0.040	0.060	0.008	0.008		0.008	
	Zone B4	0.040	0.060	0.008	0.008		0.008	
		0.013	0.060	0.002	0.002		0.002	
	Zone C4	0.040	0.0006	0.0006	0.0006	100%	0.0006	100%
Fig 1 (13)	Arm Zone B4		0.030	0.016	0.016	4%	0.016	4%
	Zone C4		0.010	0.0006	0.0006	100%	0.0006	100%
Fig 1 (14)	Arm Zone B4		0.030	0.014	0.014	4%	0.014	4%
	Zone C4		0.010	0.0006	0.0006	100%	0.0006	100%
Fig 1 (15)	Hinge Zone B4		0.001	0.020	0.020	4%	0.020	4%

NOTES

 1 inch square.

 Various thickness.

 Lug areas only.



Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Wiper 74A170759-2007, 2008	0.063 Sheet	7075-T6 Alclad
2		Wiper 74A170759-2001, -2002	0.060 Strip	Teflon
3		Wiper 74A170759-2003, -2004	0.060 Strip	Teflon
4		Wiper 74A170759-2005, -2006	0.060 Strip	Teflon
5	 	Skin 74A170734-2001, -2002 74A170734-2005, -2006	0.125 Sheet 0.040 Sheet	7075-T76 Alclad 7075-T6 Alclad
6	 	Core 74A170733-2001, -2002 74A170733-2011, -2012		5056-H39 Al Aly
7	 	Core 74A170733-2003, -2004 74A170733-2013, -2014		5056-H39 Al Aly
8	 	Core 74A170733-2005, -2006 74A170733-2015, -2016		5056-H39 Al Aly
9	 	Core 74A170733-2007, -2008 74A170733-2017, -2018		5056-H39 Al Aly
10		Core 74A170733-2009, -2010		5056-H39 Al Aly
11	   	Frame 74A170732-2001, -2002 74A170732-2005, -2006 74A170732-2007, -2008 74A170732-2009, -2010	1.50 Sheet	7075-T7351 Al Aly
12	 	Skin 74A170734-2003, -2004 74A170734-2007, -2008	0.040 Sheet	7075-T6 Alclad
13	 	Arm 74A170735-2003, -2004 74A170761-2009, -2010	1.00 Sheet	7075-T7351 Al Aly
14	 	Arm 74A170735-2001, -2002 74A170761-2001, -2002	1.25 Sheet	7075-T7351 Al Aly

Figure 1. Material Index (Sheet 2)















Idx No.	Eft	Nomenclature and Part No.	Description	Material
15		Hinge 74A170764-2001, -2002	2.00 Sheet	7075-T7351 Al Aly
<p style="text-align: center;"><b>LEGEND</b></p> <p> 1/8 x 0.002 hexcell.</p> <p> 161353 THRU 161519.</p> <p> LH - 161520 THRU 161985, 162424, RH - 161520 THRU 162395.</p> <p> LH - 161353 THRU 161985, 162424, RH - 161353 THRU 161981, 161983 THRU 161985.</p> <p> LH - 161986 THRU 162423, 162425 THRU 162907, RH - 161982, 161986 THRU 162901, 162903 THRU 162908, 163146 THRU 163148.</p> <p> 161520 THRU 161944.</p> <p> LH - 161945 THRU 161985, 162424 RH - 161945 THRU 161981, 161983 THRU 161985.</p> <p> LH - 161353 THRU 161711, RH - 161353 THRU 161712.</p> <p> LH - 161712, 161714 AND UP, RH - 161713 AND UP.</p> <p> LH - 161353 THRU 161714, RH - 161353 THRU 161712.</p> <p> LH - 161715 AND UP, RH - 161714 AND UP.</p>				

Figure 1. Material Index (Sheet 3)

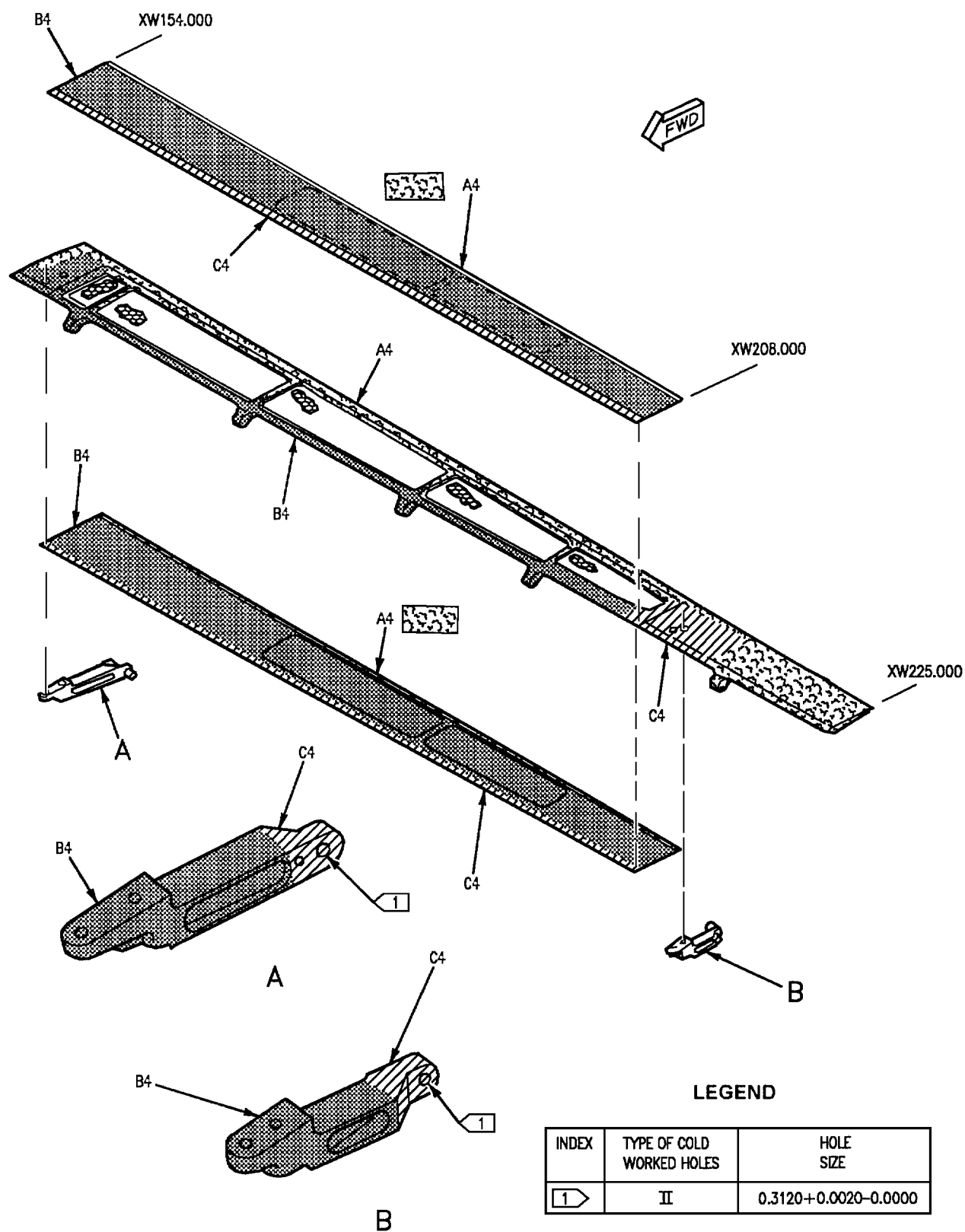
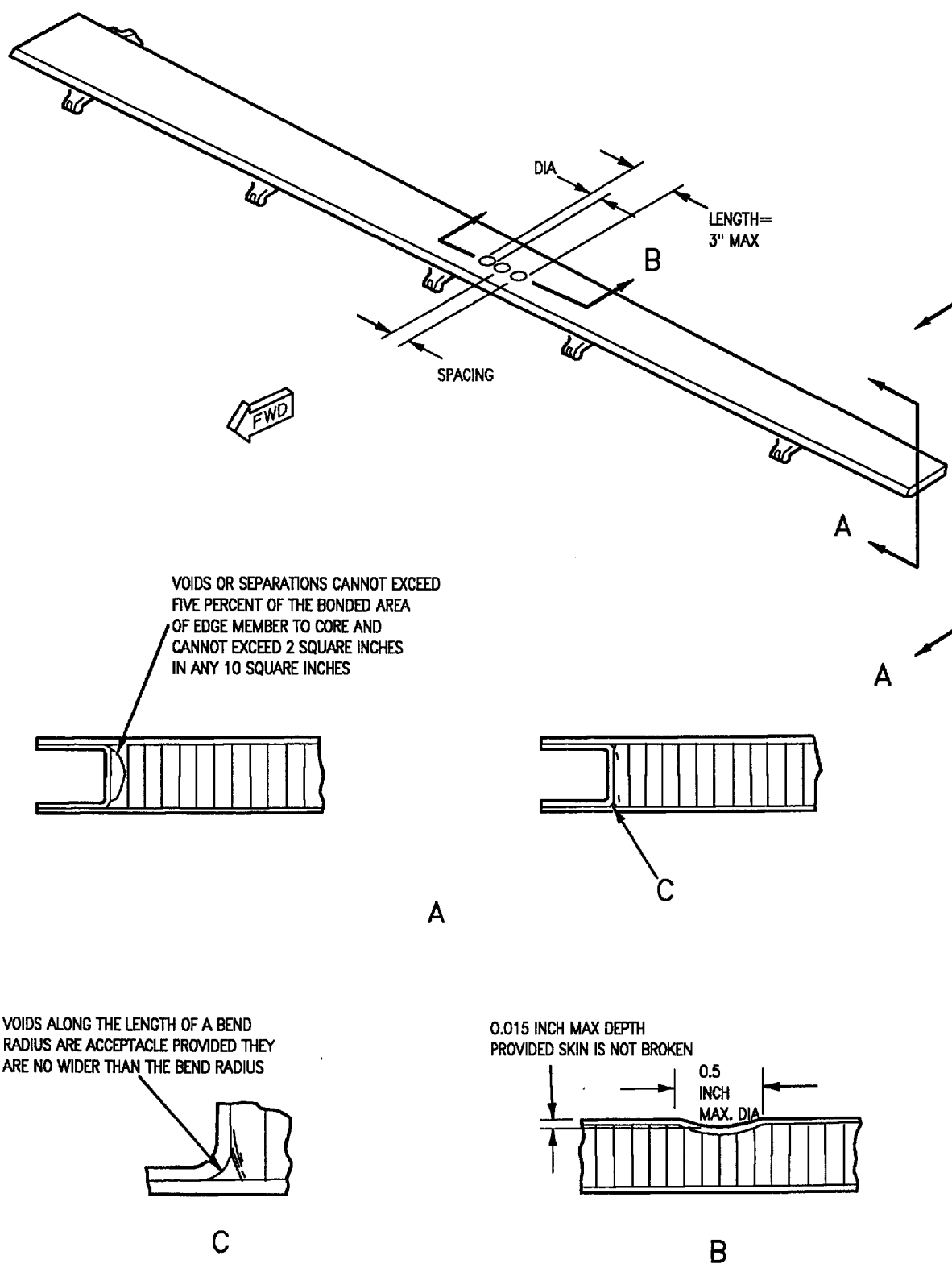
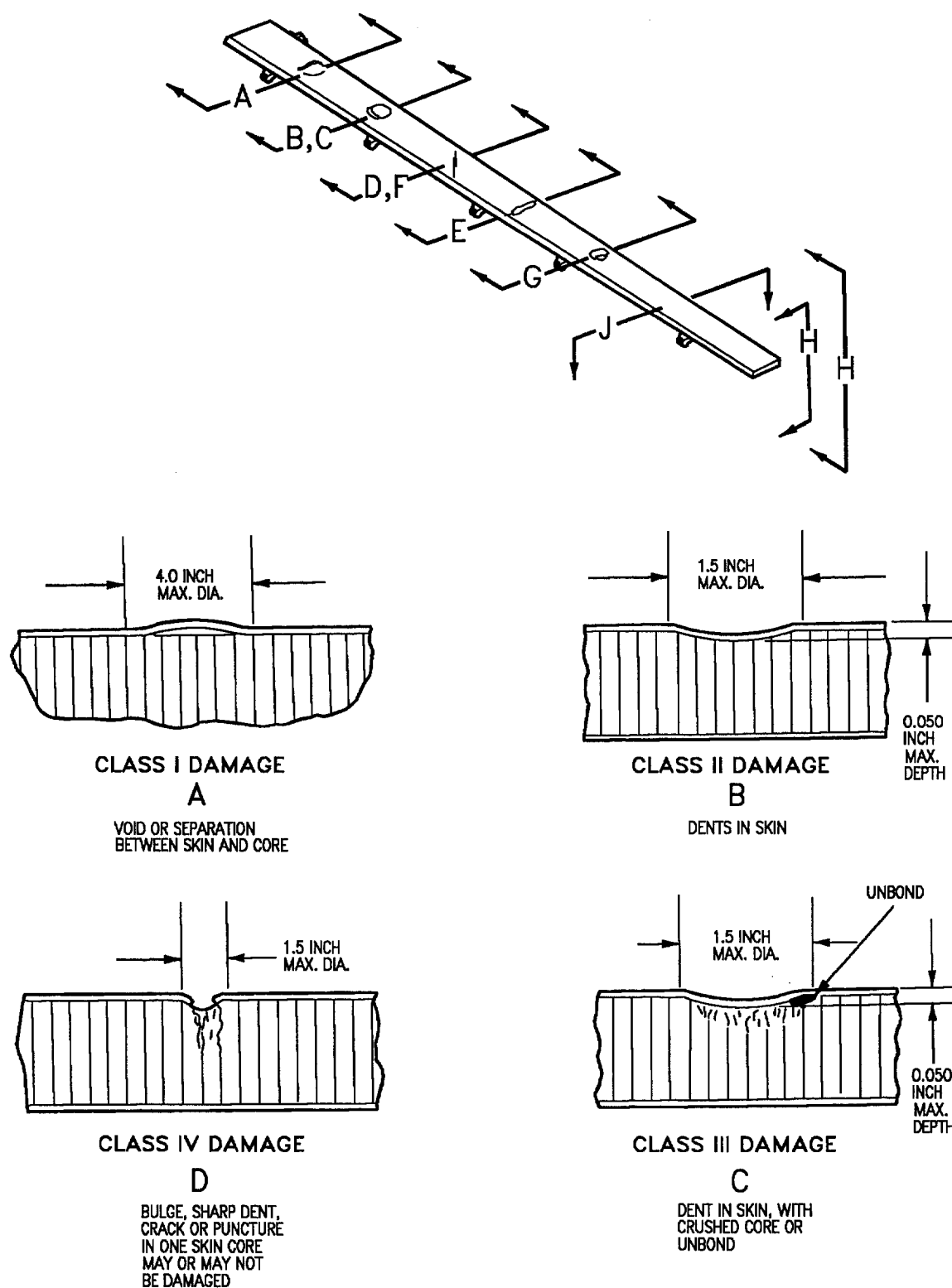


Figure 2. Repair Zones



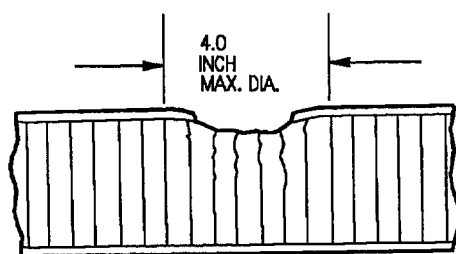
009003

Figure 3. Negligible Damage, Aluminum Skin and Aluminum Honeycomb Core



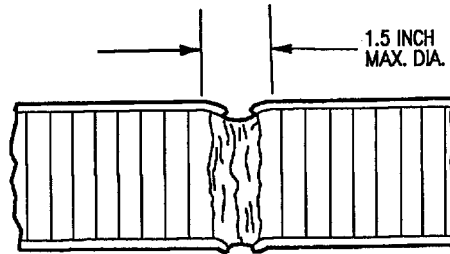
00900401

Figure 4. Repairable Damage, Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 1)



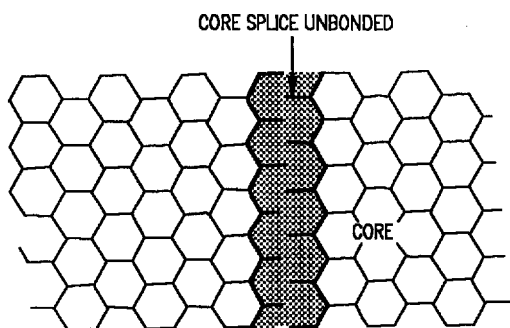
BULGE, DENT, CRACK  
OR PUNCTURE IN ONE  
SKIN ONLY, ANY CLASS  
CORE DAMAGE

**E**  
CLASS V DAMAGE



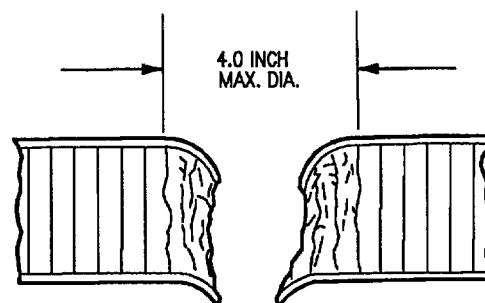
BOTH SKINS CRACKED  
OR PUNCTURED, BULGED,  
SHARPLY DENTED, ANY  
CLASS CORE DAMAGE

**F**  
CLASS VI DAMAGE



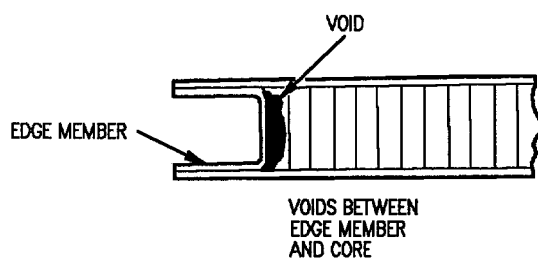
VOIDS OR SEPARATIONS  
IN CORE SPLICE

**J**  
CLASS IX DAMAGE



BOTH SKINS CRACKED,  
PUNCTURED, BULGED,  
OR DENTED LEVEL,  
ANY CORE DAMAGE

**G**  
CLASS VII DAMAGE



**H**  
CLASS VIII DAMAGE

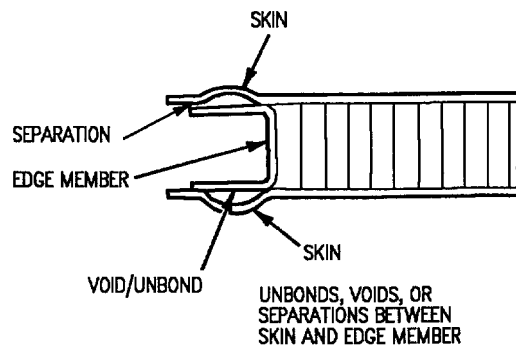


Figure 4. Repairable Damage, Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 2)

## 27. REPLACEMENT.

28. Aileron shroud wiper seal 74A170759 can be replaced per paragraph 29. Replacement of parts listed below require depot tooling (WP009 01).

29. AILERON SHROUD WIPER SEAL 74A170759 REPLACEMENT - LH 161353 THRU 161987 AND RH 161353 THRU 162395. See figure 5.



Be careful not to enlarge holes when drilling out rivets.

a. Remove rivets (1 and 2) (NAVAIR 01-1A-8) attaching seal to aileron shroud and remove seal.

**NOTE**

Three piece teflon seal or one piece aluminum seal is replaced with the one piece aluminum seal. See figure 1, Item 15.

(1) Replacement of three piece teflon seal with one piece aluminum seal. See figure 5, detail A. The figure shows rivet pattern and spacing, and the alignment of wiper to shroud.

(2) Replacement of one piece aluminum seal with one piece aluminum seal. Align seal with shroud and mate drill. For locating blind holes (A1-F18AC-SRM-200, WP004 03). See figure 5, detail B. The figure shows rivet pattern and spacing, and the alignment of wiper to shroud.



Do not install rivets by vibration method, could cause structural damage.

b. Install rivets (1 and 2) (NAVAIR 01-1A-8).

30. FABRICATION OF AILERON SHROUD RUB PADS. See figure 6. Fabrication of the aileron shroud rub pads is intermediate level maintenance. Installation procedures are located in the A1-F18AC-570-300, WP010 00.

**Support Equipment Required**

None

**Materials Required**

Nomenclature	Specification or Part Number
Plastic Sheet	AMS3651ETCH1SIDE, 0.063 X 24 X 24

a. Cut rub pads from plastic sheet per dimensions, view A.

**NOTE**

Be sure to countersink the rub pad on the unetched side.

b. Drill and countersink hole in center of rub pad.

c. Install the rub pads (A1-F18AC-570-300, WP010 00).

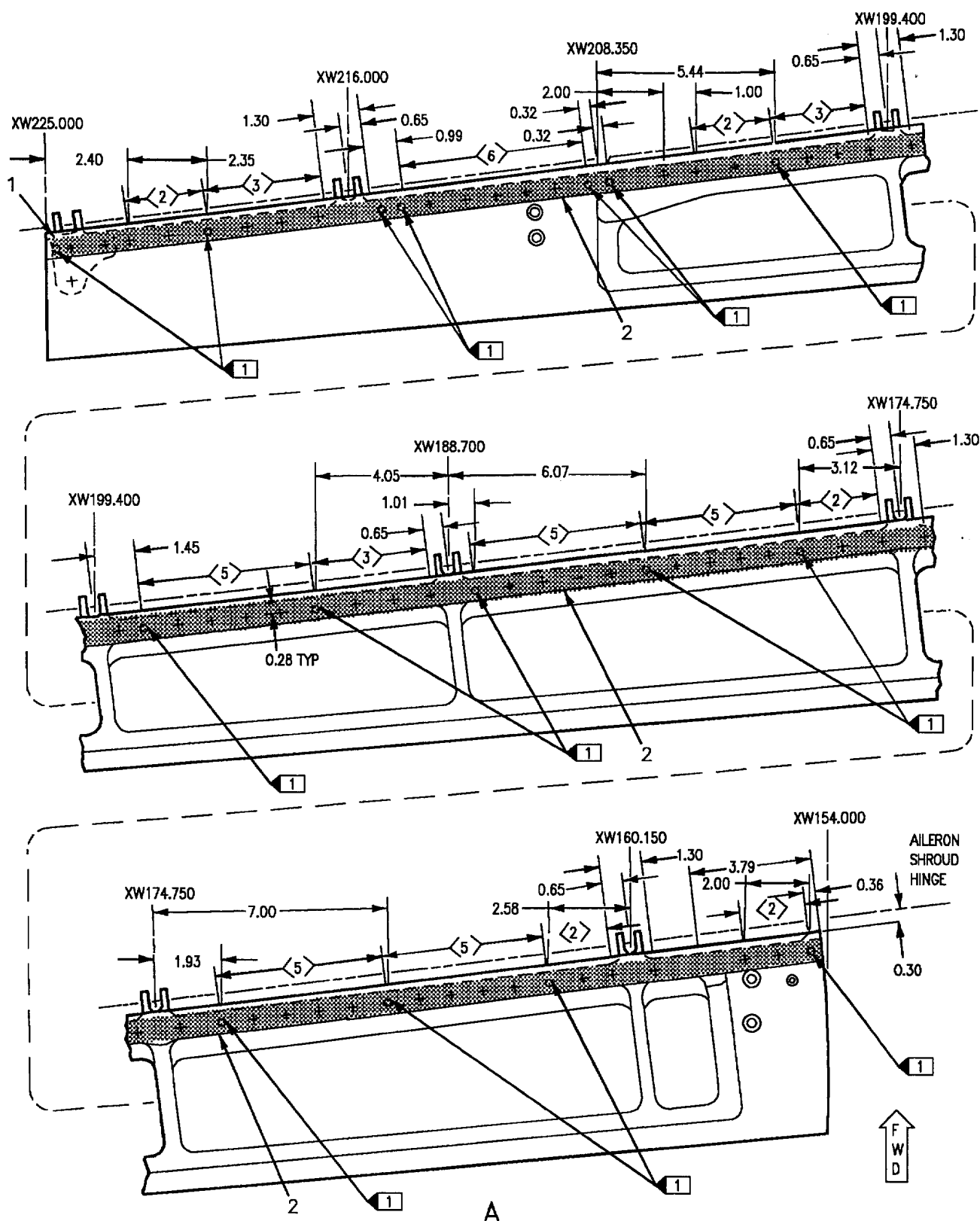


Figure 5. Wiper Seal, Aileron Shroud (74A170759) (Sheet 1)

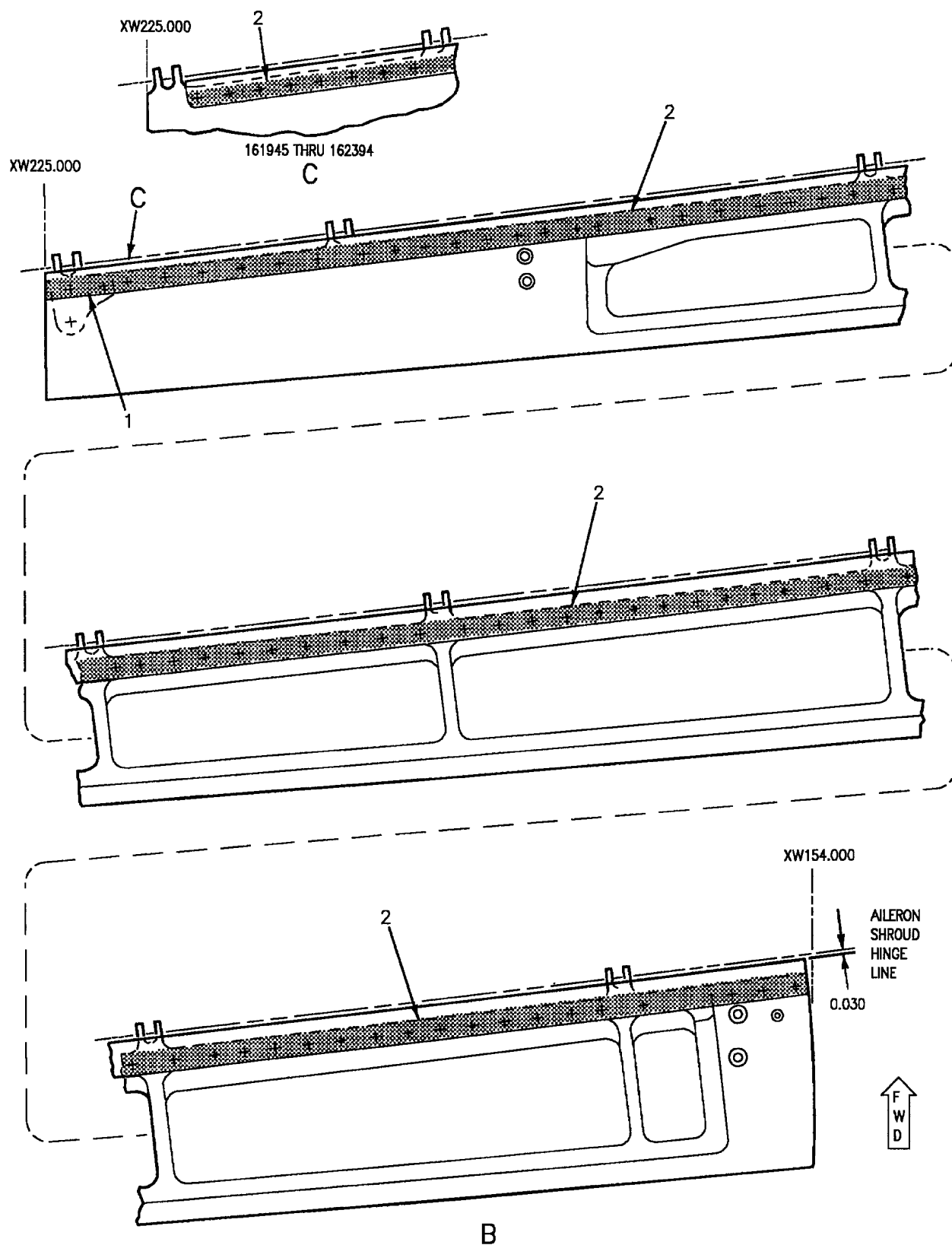


Figure 5. Wiper Seal, Aileron Shroud (74A170759) (Sheet 2)











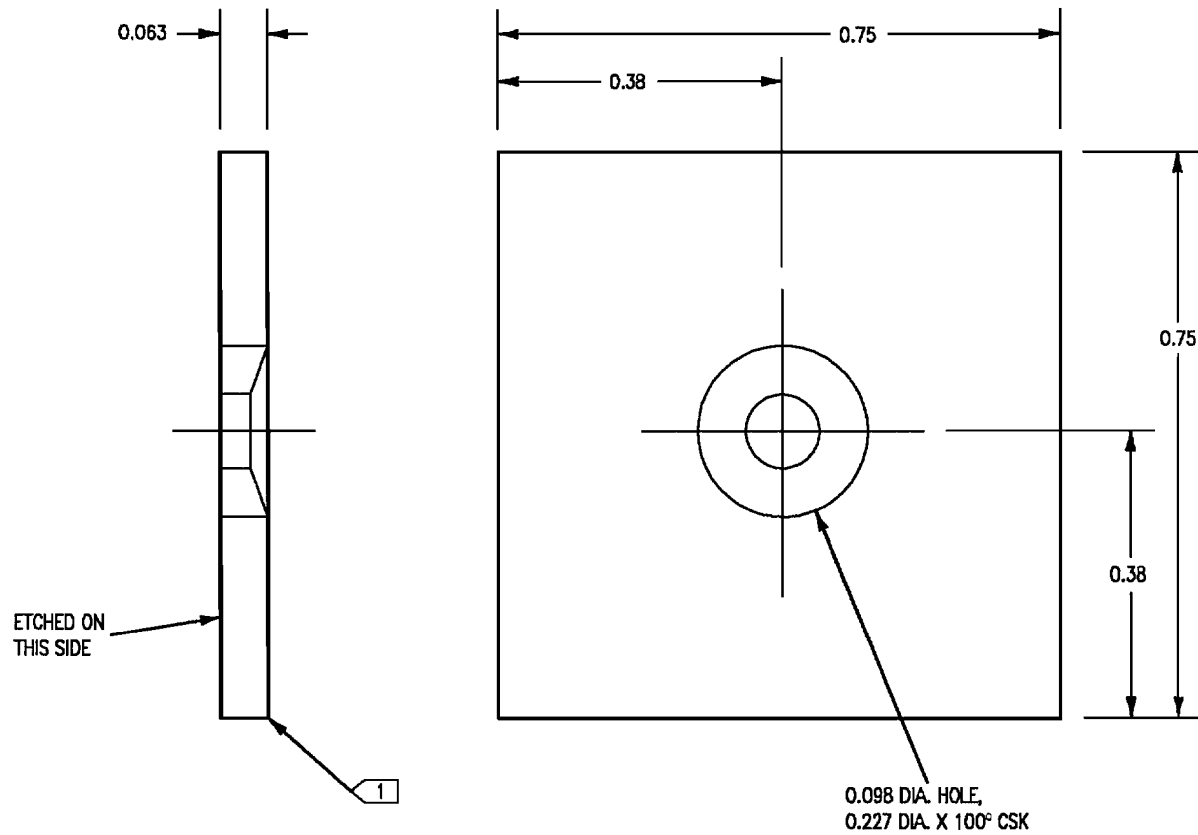
Idx No.	Eft		Nomenclature	Part Number
1			 Rivet	CSR904B-4
2			 Rivet	CSR902B-4
<p style="text-align: center;"><b>LEGEND</b></p> <p> Existing holes.</p> <p> Hole diameter is 0.187 +0.0007 -0.0000.</p> <p> Hole diameter is 0.125 +0.0007 -0.0000.</p> <p> Length of rivet determined on installation.</p>				

Figure 5. Wiper Seal, Aileron Shroud (74A170759) (Sheet 3)

**LEGEND**

- 1 BREAK SHARP EDGES 0.03 TO 0.05 RADIUS  
ALL AROUND THIS SIDE ONLY.

009006

**Figure 6. Fabrication of Aileron Shroud Rub Pads**

---

DEPOT MAINTENANCE  
STRUCTURE REPAIR  
MAINTENANCE FIXTURE, RE174170103  
AILERON SHROUD

---

Reference Material

Structural Repair - Wing .....	A1-F18AC-SRM-210
Aileron Shroud .....	WP009 00

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Record of Applicable Technical Directives

None

1. DESCRIPTION.

2. The aileron shroud maintenance fixture (fixture) is used to evaluate and repair the aileron shroud. The fixture contains locators for various details on the aileron shroud (shroud) and supports to hold the shroud in position during repair actions. The supports and locators also serve as gaging surfaces for damage inspection. The fixture requires accurate leveling and verification with an alignment kit before use and should be gage recycled with aileron shroud alignment kit to verify fixture remains accurate.

3. LEVELING, RIGGING AND ALIGNMENT OF MAINTENANCE FIXTURE. See figure 1.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Alignment Set	AK174170103-1
Spirit Level	-

Materials Required

None

a. Level fixture horizontally and vertically by using a level and adjusting jack pads (detail 107) as below:

(1) Loosen upper nut on all jack pads (detail 107) and adjust jack pads (detail 107) until level.

(2) Tighten upper nut on all jack pads (detail 107) to lock jack pads (detail 107) in place.

b. Rig and align the fixture by installing the maintenance fixture alignment set.

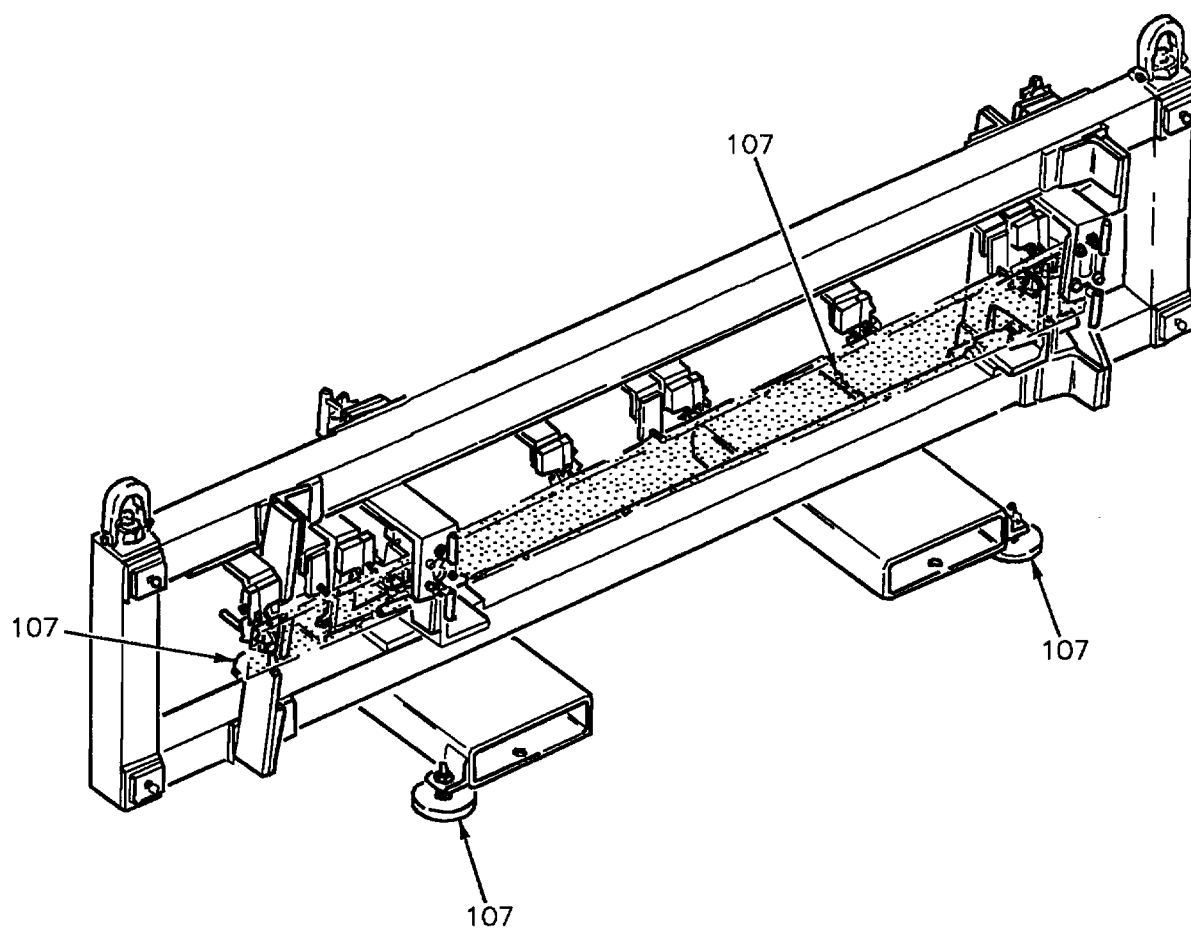


Figure 1. Maintenance Fixture Leveling (Sheet 1)

Detail No.	Name	Function
107	Jack pad	Primary support for maintenance fixture and leveling assembly.

Figure 1. Maintenance Fixture Leveling (Sheet 2)

4. INSTALLATION OF AILERON SHROUD WITH TWO UNDAMAGED BUSHINGS POSITION A OR B, TWO UNDAMAGED BUSHINGS POSITION E OR F INTO MAINTENANCE FIXTURE. See figure 2.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Thickness Gage	FSC5210

### Materials Required

None

a. Install support (detail 12) by aligning support (detail 13) with frame (detail 12) with L-pins (detail 133) and installing hand knobs (detail 132) through support (detail 12) into frame (detail 11) and handtighten, view A.

b. Install support (detail 13) by aligning support (detail 13) with frame (detail 11) with L-pins (detail 133) and installing hand knobs (detail 132) through support (detail 13) into frame (detail 11) and handtighten, view B.

c. Remove knurled nuts (detail 117) from pins (detail 115), view A and B.

d. Remove hand knob (detail 131) and angle bracket (detail 146) from support (detail 12), view A.

e. Remove hand knob (detail 131) and angle bracket (detail 126) from support (detail 13), view

f. Loosen hand knobs (detail 194) and retract locators (detail 193), views C and E.

g. Loosen nuts (detail 121), retract socket head screws (detail 122), views A and B.

h. Remove cam follower from each drive arm.

i. Install shroud in maintenance fixture as below:

(1) Install L-pin (detail 19) through locator block (detail 158 or 159), shroud hinge lug and locator block (detail 161 or 165) at position A or B, view G or H.

(2) For 161353 THRU 161519, install L-pin (detail 19) through locator block (detail 200), shroud hinge lug, and locator block (detail 177) at position E only, view G.

(3) For 161520 AND UP, install L-pin (detail 19) through locator block (detail 200 or 160), shroud hinge lug, and locator block (detail 177 or 181) at position E or F, view G or J.

### NOTE

A 0.001 inch thickness difference maximum is allowed between the two feeler gages used.

j. Position shroud for inboard and outboard location in fixture by using two equal feeler gages (minimum feeler gage thickness is 0.010 inch) between locator block (detail 159) and shroud hinge lug, view K.

k. Position shroud for up and down location in fixture by extending locators (detail 193) and pin in place with L-pins (detail 205). Secure locators (detail 193) by tightening hand knob (detail 194), views D, E and F.

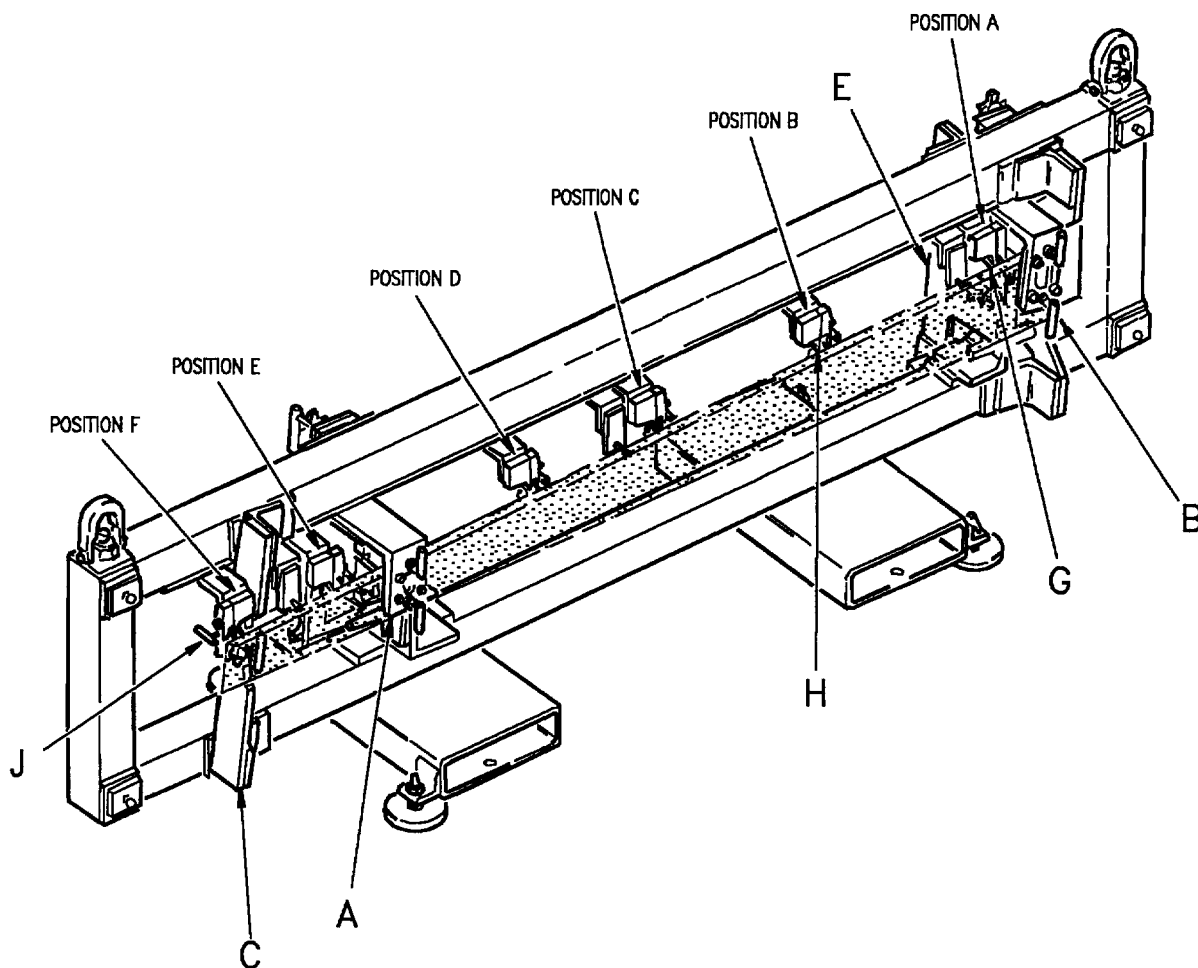


Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 1)



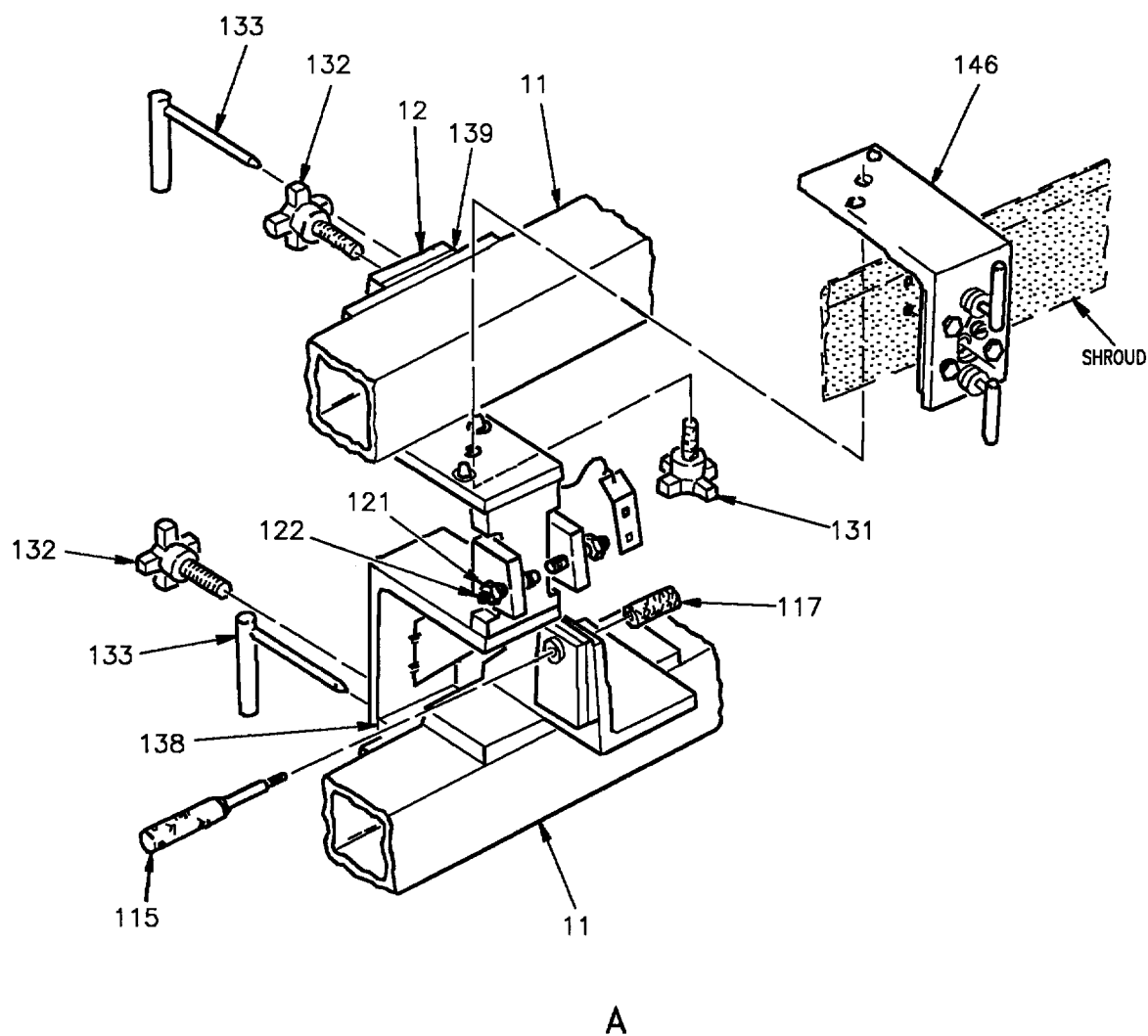
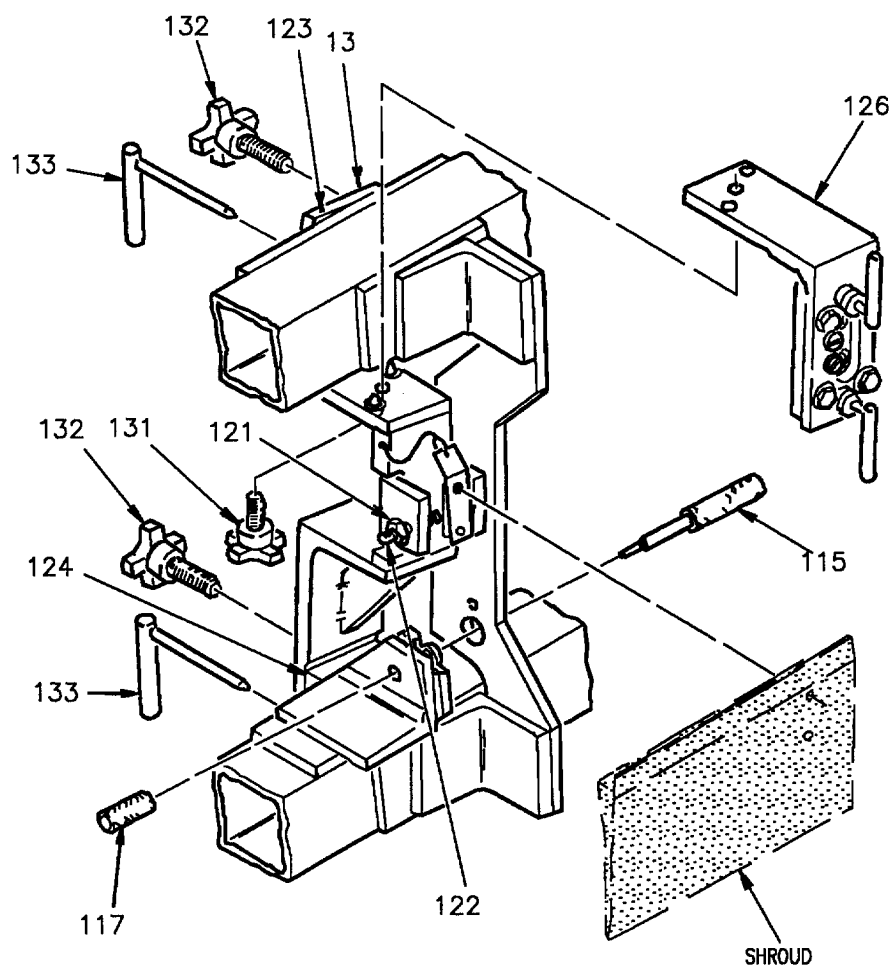


Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 2)



B

Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 3)

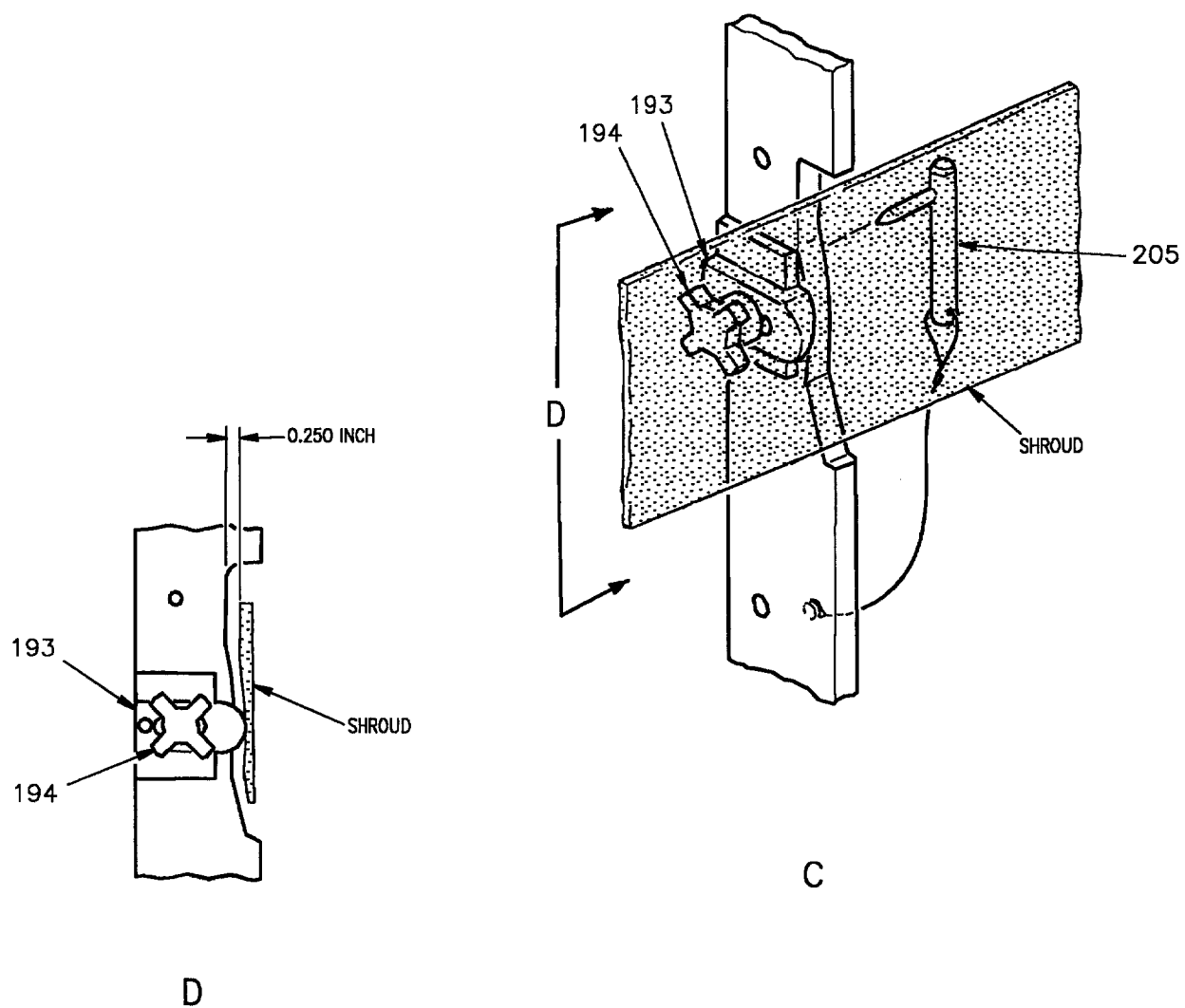


Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 4)

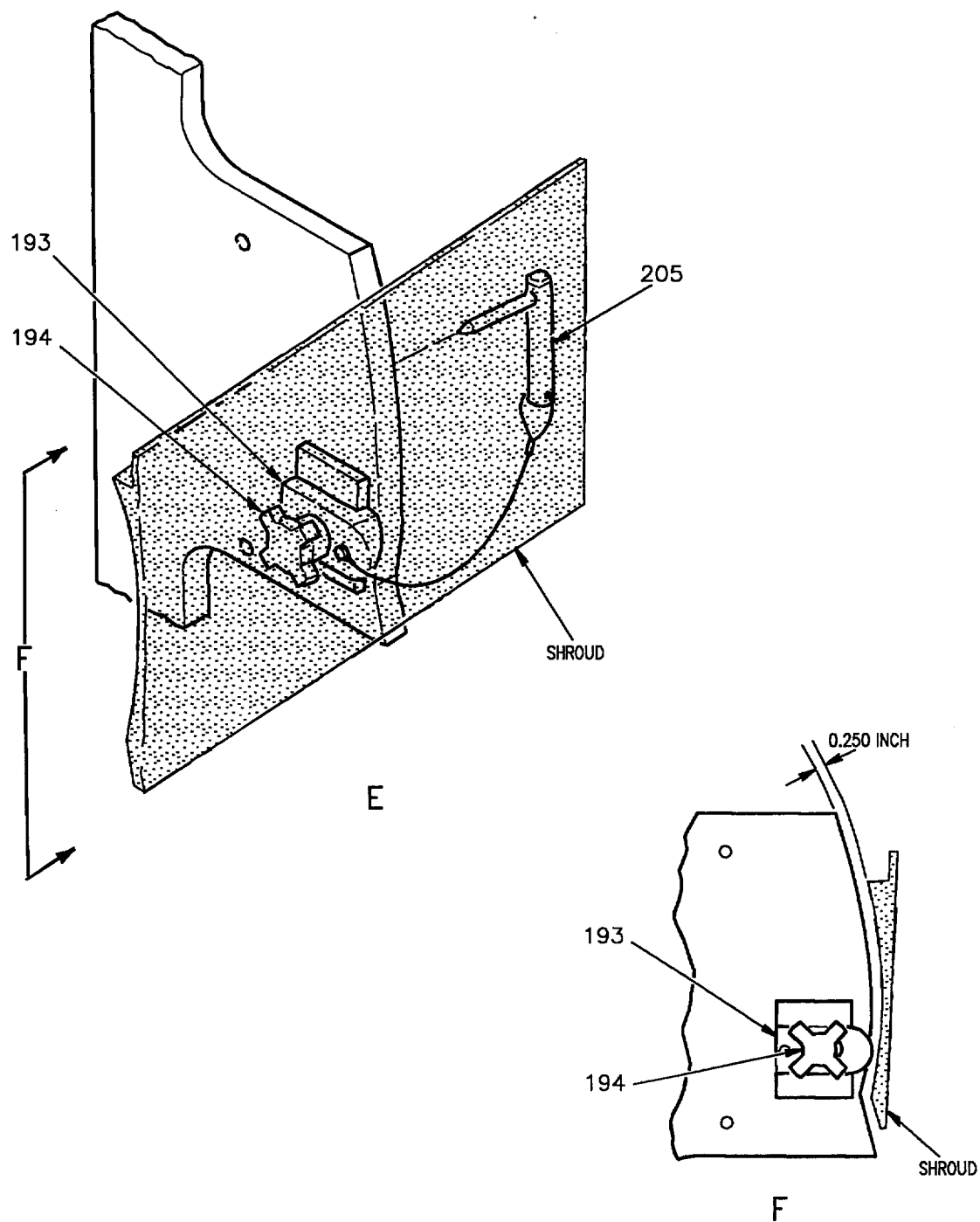


Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 5)

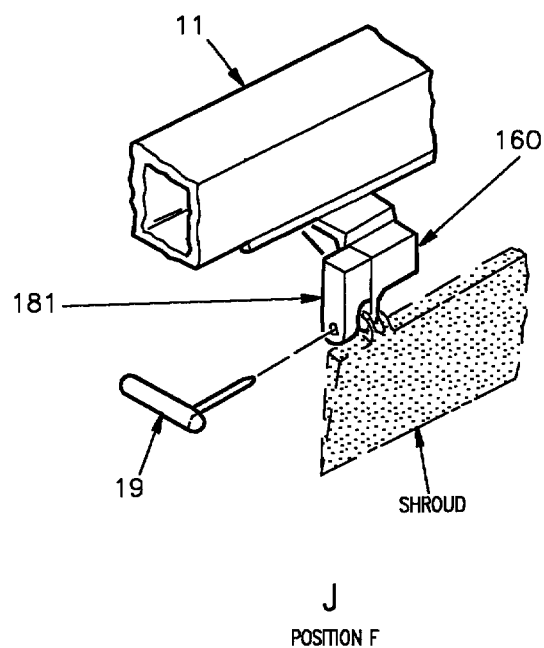
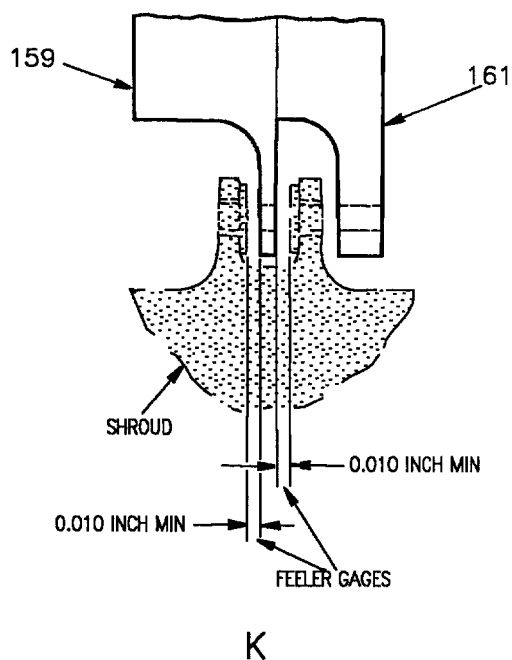
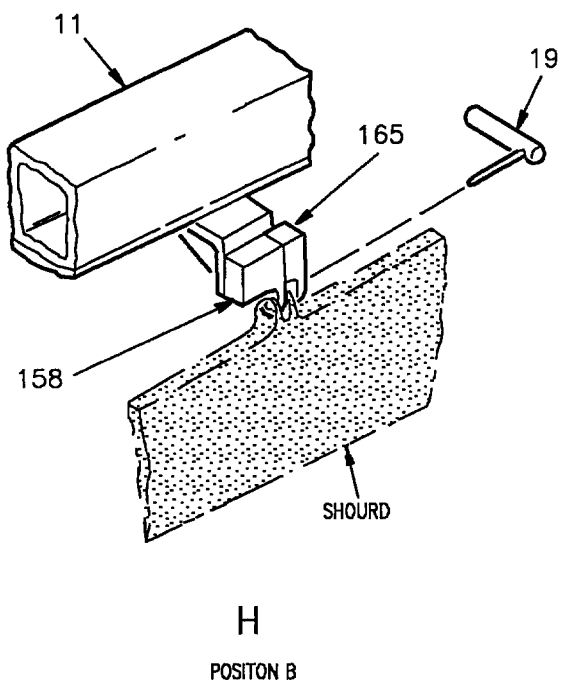
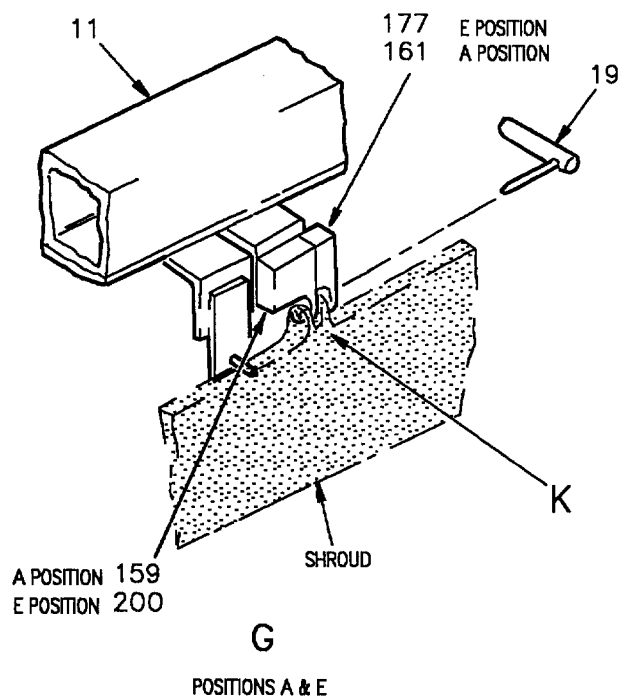


Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 6)

Detail No.	Name	Function
11	Frame	Primary support for various details.
12	Support	Supports detail 146 in maintenance fixture.
13	Support	Supports detail 126 in maintenance fixture.
19	L-pin	Supports shroud in maintenance fixture.
115	Pin	Locates and supports drive arm.
117	Knurled nut	Secures detail 115 in place.
121	Nut	Secures detail 122 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
123	Shim	Positions detail 13.
124	Shim	Positions detail 13.
126	Angle bracket	Supports and locates drill plate.
131	Hand knob	Secures details 126 and 146.
132	Hand knob	Secures details 12 and 13.
133	L-pin	Locates details 12 and 13.
138	Shim	Positions detail 12.
139	Shim	Positions detail 12.
146	Angle bracket	Supports and locates drill plate.
158	Locator block	Locates and aligns shroud in maintenance fixture.
159	Locator block	Locates and aligns shroud in maintenance fixture.
160	Locator block	Locates and aligns shroud in maintenance fixture.
161	Locator block	Locates and aligns shroud in maintenance fixture.
165	Locator block	Locates and aligns shroud in maintenance fixture.
177	Locator block	Locates and aligns shroud in maintenance fixture.
181	Locator block	Locates and aligns shroud in maintenance fixture.
193	Locator	Locates shroud in maintenance fixture for contour inspection.
194	Hand knob	Secures detail 193 in place.
200	Locator block	Locates and aligns shroud in maintenance fixture.
205	L-pin	Locates detail 193.

Figure 2. Installation of Shroud into Maintenance Fixture (Sheet 7)

## 5. INSPECTION FOR MOLD LINE CONTOUR (TWIST) AND INBOARD TRIM. See figure 3.

### Support Equipment Required

None

### Materials Required

None

a. Inspect for mold line contour with locators (detail 193) extended, shroud held against locators (detail 193). Insert a 0.250 inch feeler gage between shroud and contour boards (detail 109 and 137), views A, B, C, and D.

b. Inspect for inboard trim by using a flat scribe along inboard surface of support (detail 108), view E.

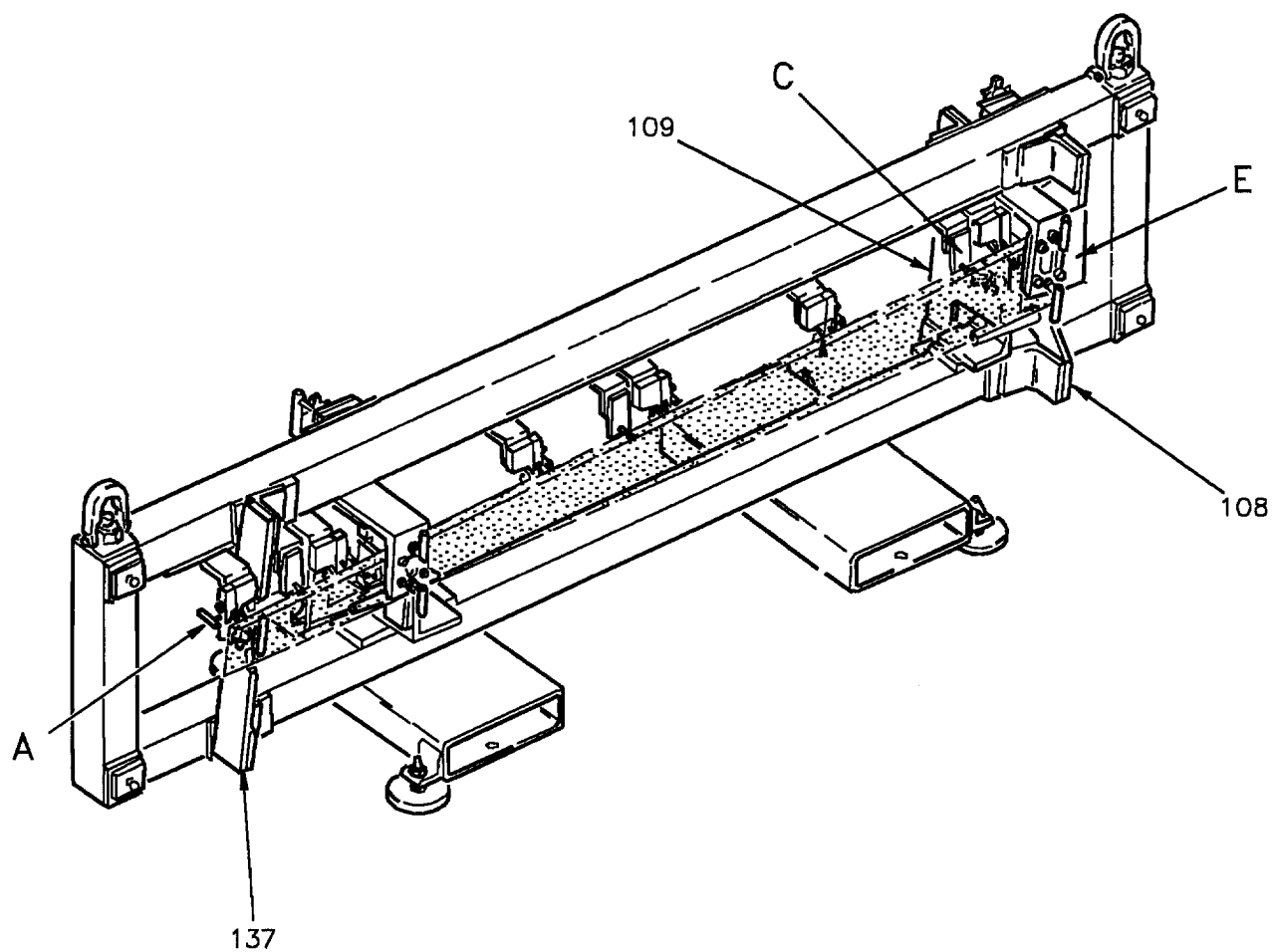


Figure 3. Moldline Contour and Inboard Trim Inspection (Sheet 1)



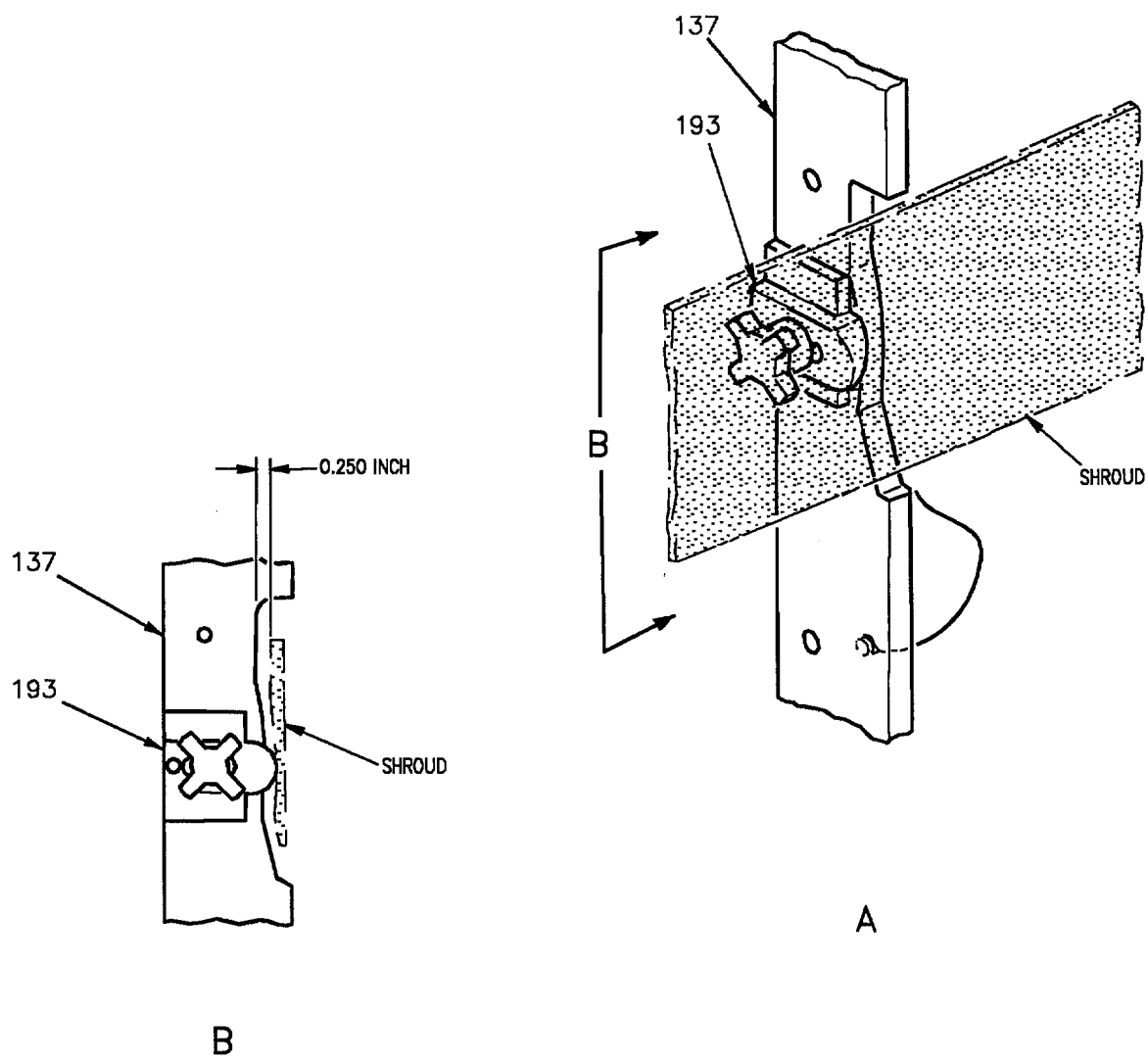


Figure 3. Moldline Contour and Inboard Trim Inspection (Sheet 2)

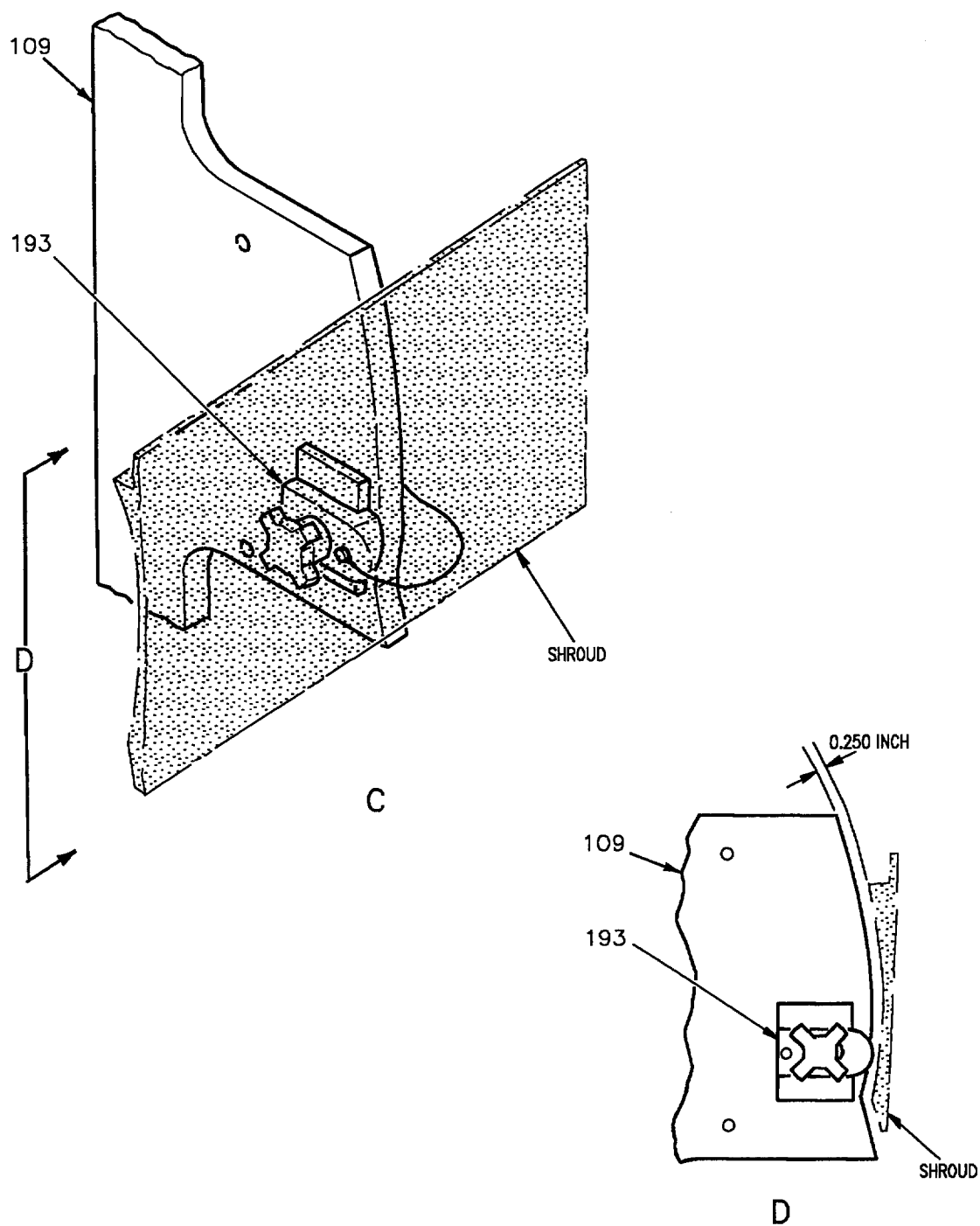


Figure 3. Moldline Contour and Inboard Trim Inspection (Sheet 3)

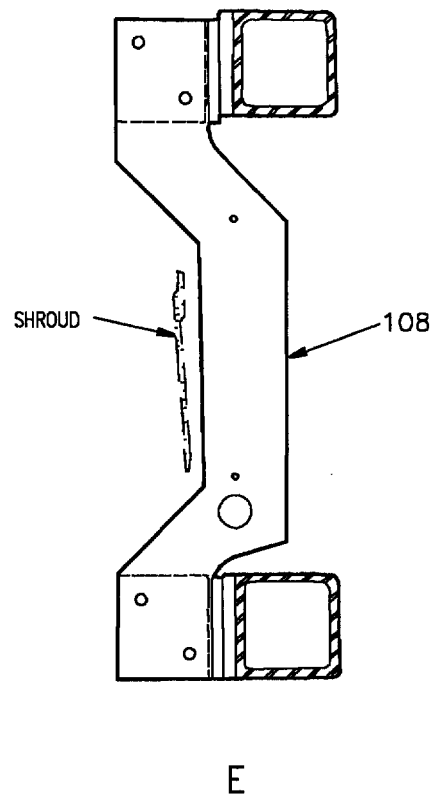


Figure 3. Moldline Contour and Inboard Trim Inspection (Sheet 4)

Detail No.	Name	Function
108	Support	Used for inboard trim inspection
109	Contour board	Used for moldline contour inspection.
137	Contour board	Used for moldline contour inspection.
193	Locator	Locates shroud in maintenance fixture for contour inspection.

Figure 3. Moldline Contour and Inboard Trim Inspection (Sheet 5)

6. INSPECTION FOR TWIST AND ALIGNMENT OF HINGE LUGS WITH ORIGINAL BUSHINGS. See figure 4.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
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Thickness Gage	FSC5210
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### Materials Required

None

### NOTE

A 0.001 inch, maximum thickness difference is allowable between the two thickness gages used.

a. Inspect shroud for inboard and outboard location with bushings installed or removed by inserting two equal thickness gages (minimum thickness gage thickness is 0.010 inch) between locator blocks (details 158, 159, 160, 198, 199, and 200) and shroud hinge lugs, views A, B, C, and D.

b. Inspect shroud hinge lugs with bushings installed for twist and alignment by inserting L-pin (detail 19) through both locator blocks (detail 159 and 161, 158 and 165, 198 and 169, 199 and 173, 200 and 177, 160 and 181) and hinge lugs at positions A, B, C, D, E, and F, views A, B, C, and D.

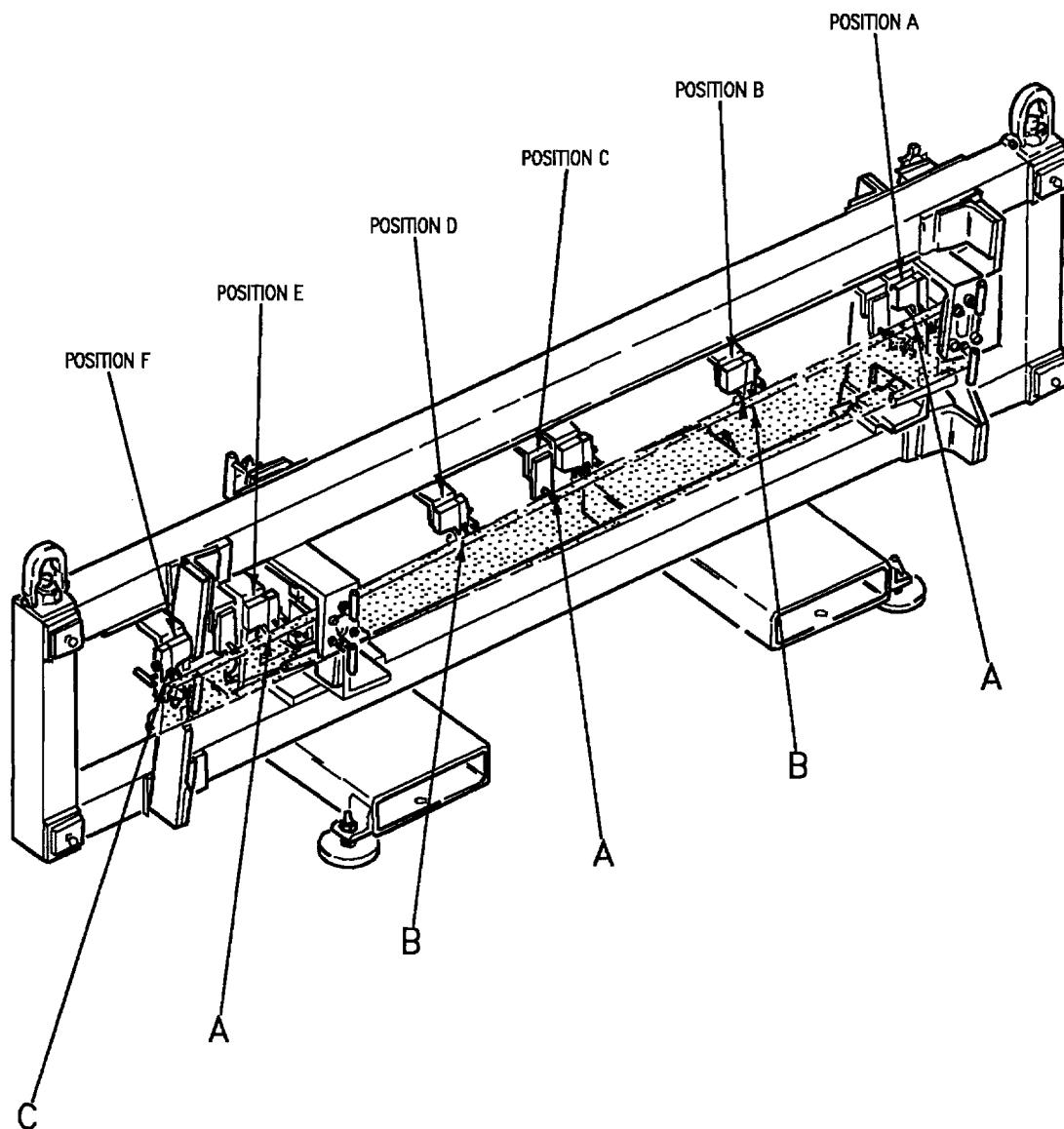


Figure 4. Inspection of Hinge Lugs for Twist and Alignment (Sheet 1)

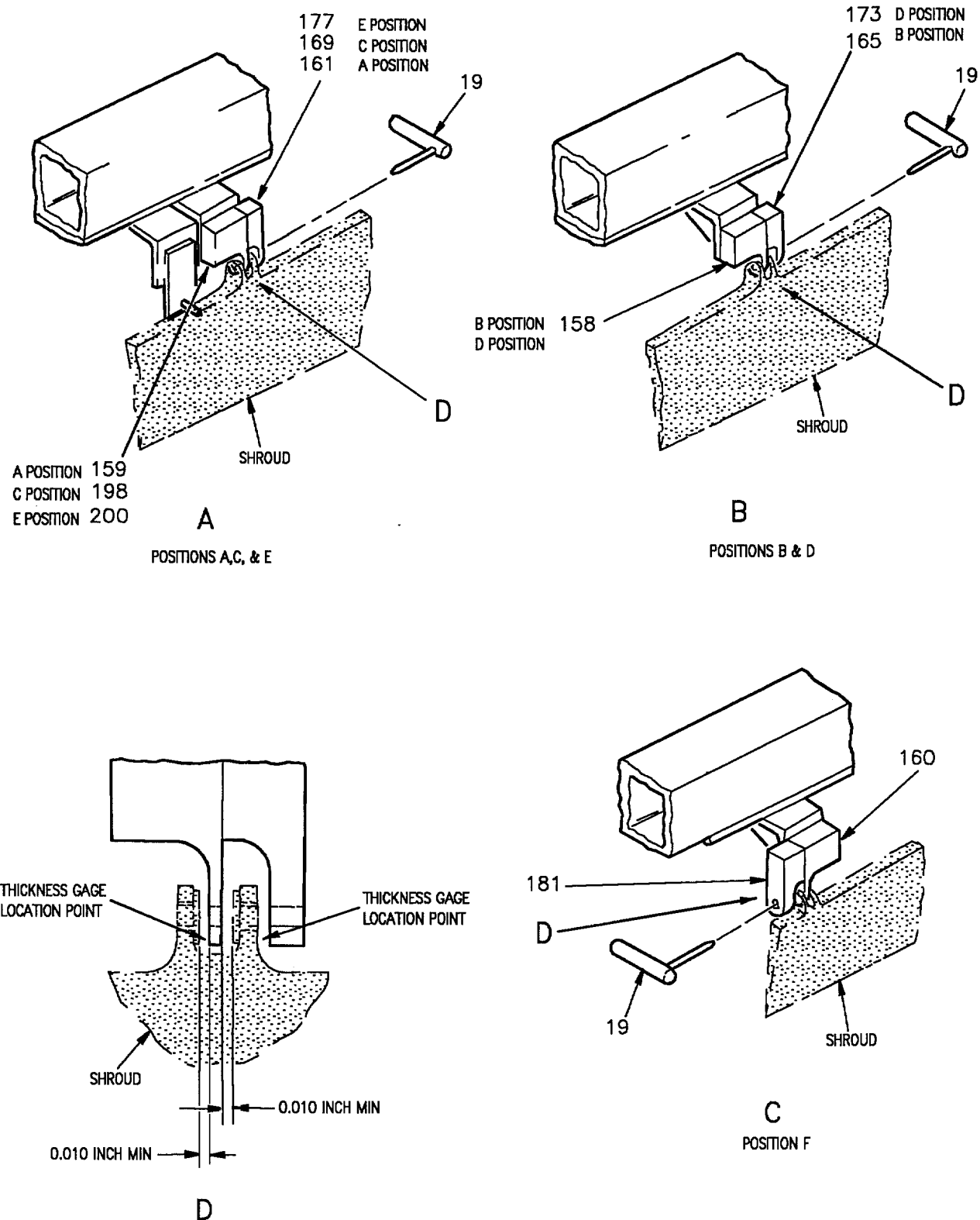


Figure 4. Inspection of Hinge Lugs for Twist and Alignment (Sheet 2)

Detail No.	Name	Function
19	L-pin	Support shroud in maintenance fixture.
158	Locator block	Locates and aligns shroud in maintenance fixture.
159	Locator block	Locates and aligns shroud in maintenance fixture.
160	Locator block	Locates and aligns shroud in maintenance fixture.
161	Locator block	Locates and aligns shroud in maintenance fixture.
165	Locator block	Locates and aligns shroud in maintenance fixture.
169	Locator block	Locates and aligns shroud in maintenance fixture.
173	Locator block	Locates and aligns shroud in maintenance fixture.
177	Locator block	Locates and aligns shroud in maintenance fixture.
181	Locator block	Locates and aligns shroud in maintenance fixture.
198	Locator block	Locates and aligns shroud in maintenance fixture.
199	Locator block	Locates and aligns shroud in maintenance fixture.
200	Locator block	Locates and aligns shroud in maintenance fixture.

Figure 4. Inspection of Hinge Lugs for Twist and Alignment (Sheet 3)



7. REPLACEMENT OF WIPER SEAL, RH 161353 THRU 162395, LH 161353 THRU 161987. See figure 5.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Clamping Plier	FSC5120
Machinists Scribe	FSC5120

### Materials Required

None

a. Install supports (details 151, 201, and 202) with locator (detail 152) and pin (detail 153) on frame (de-

tail 11) with hand knob (detail 155), handtighten hand knob (detail 155), views B, C, and D.

b. Position wiper seal against pin (detail 153) for forward and aft location, views B, C, and D.

c. Position wiper seal flush with outboard edge of shroud.

d. Clamp wiper seal to shroud with clamping pliers.

e. Install wiper seal (WP009 00).

f. Trim inboard edge of wiper seal by scribing a mark on wiper seal using support (detail 108). Trim wiper seal along this mark, view A.

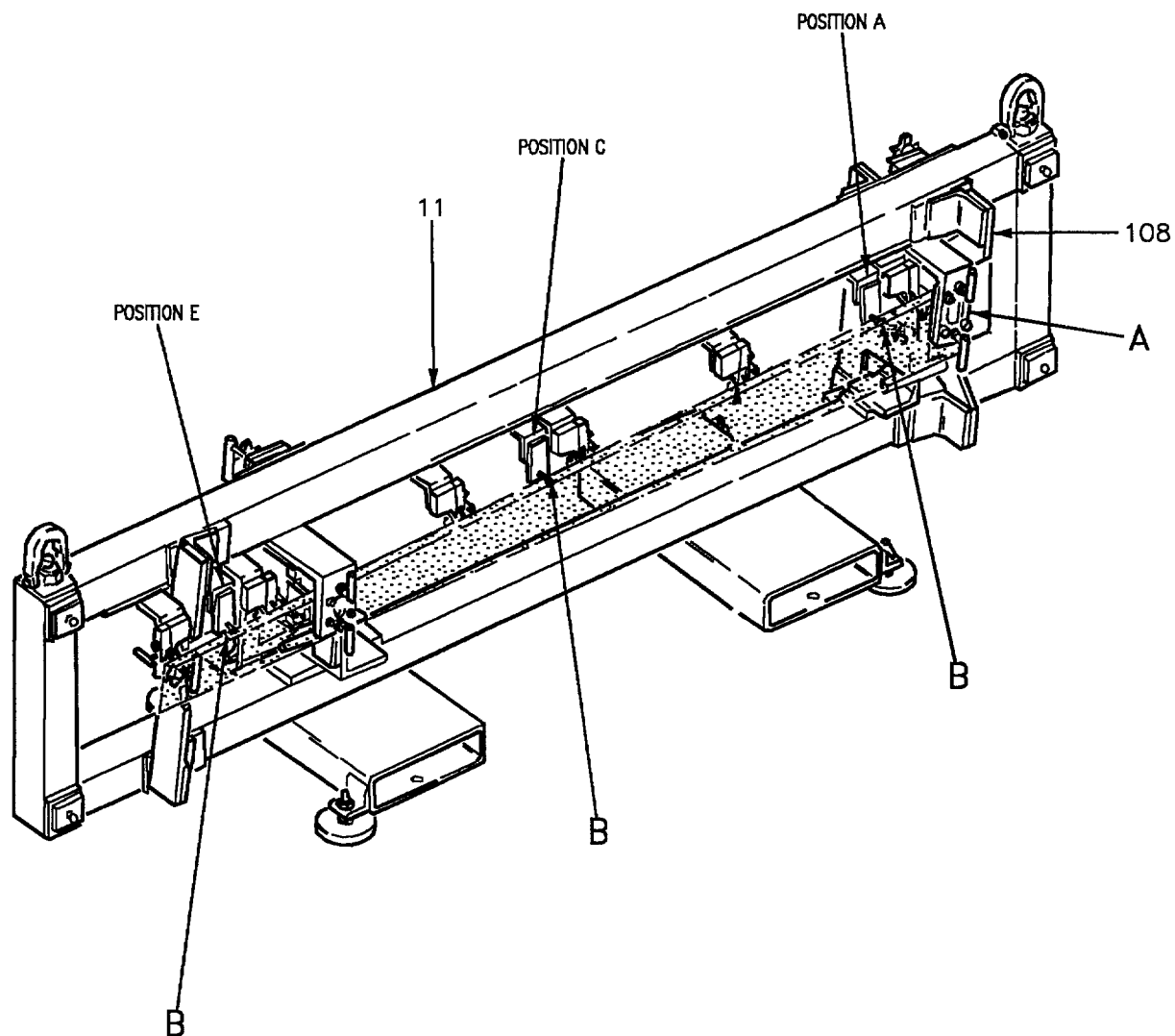


Figure 5. Wiper Seal Replacement (Sheet 1)

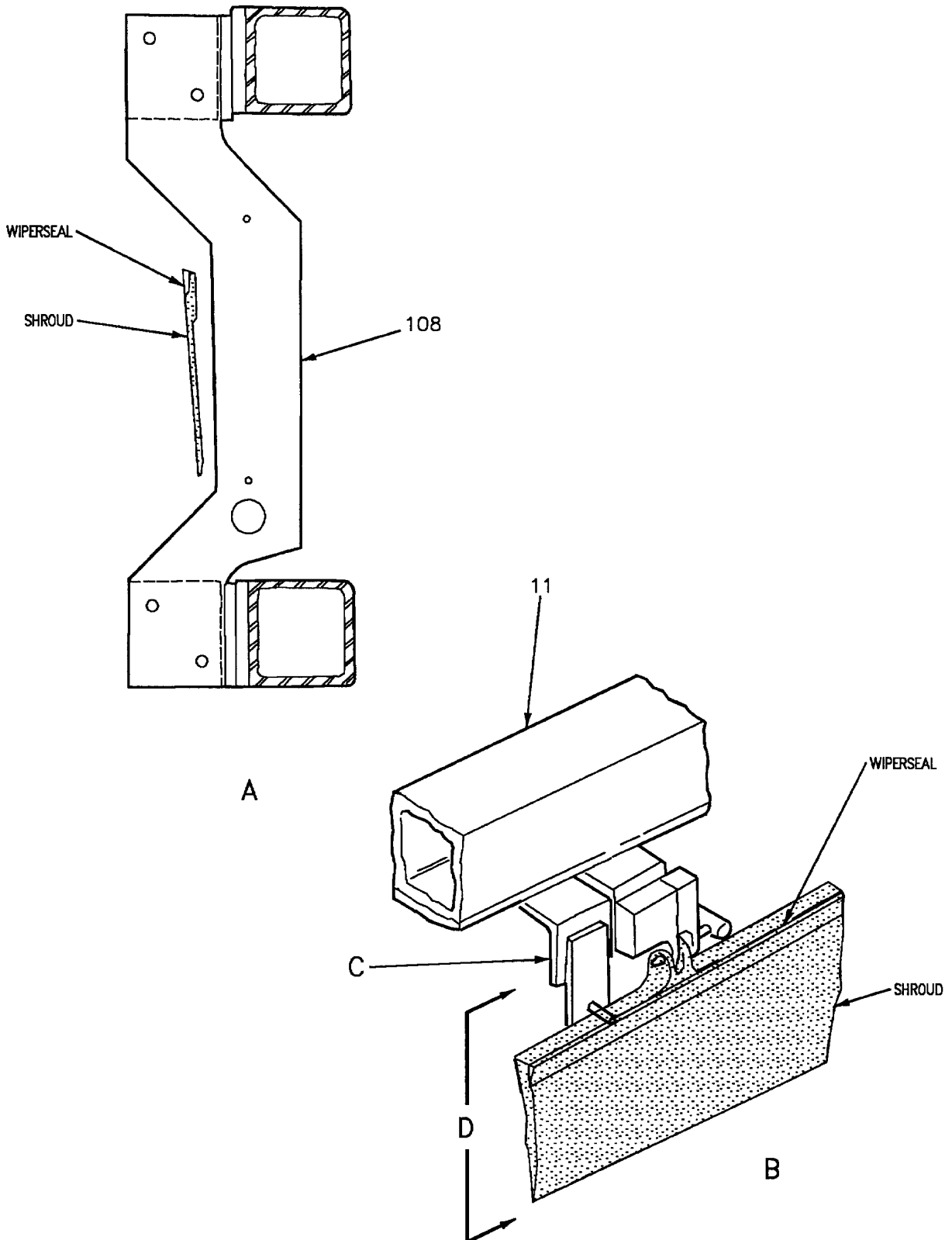


Figure 5. Wiper Seal Replacement (Sheet 2)

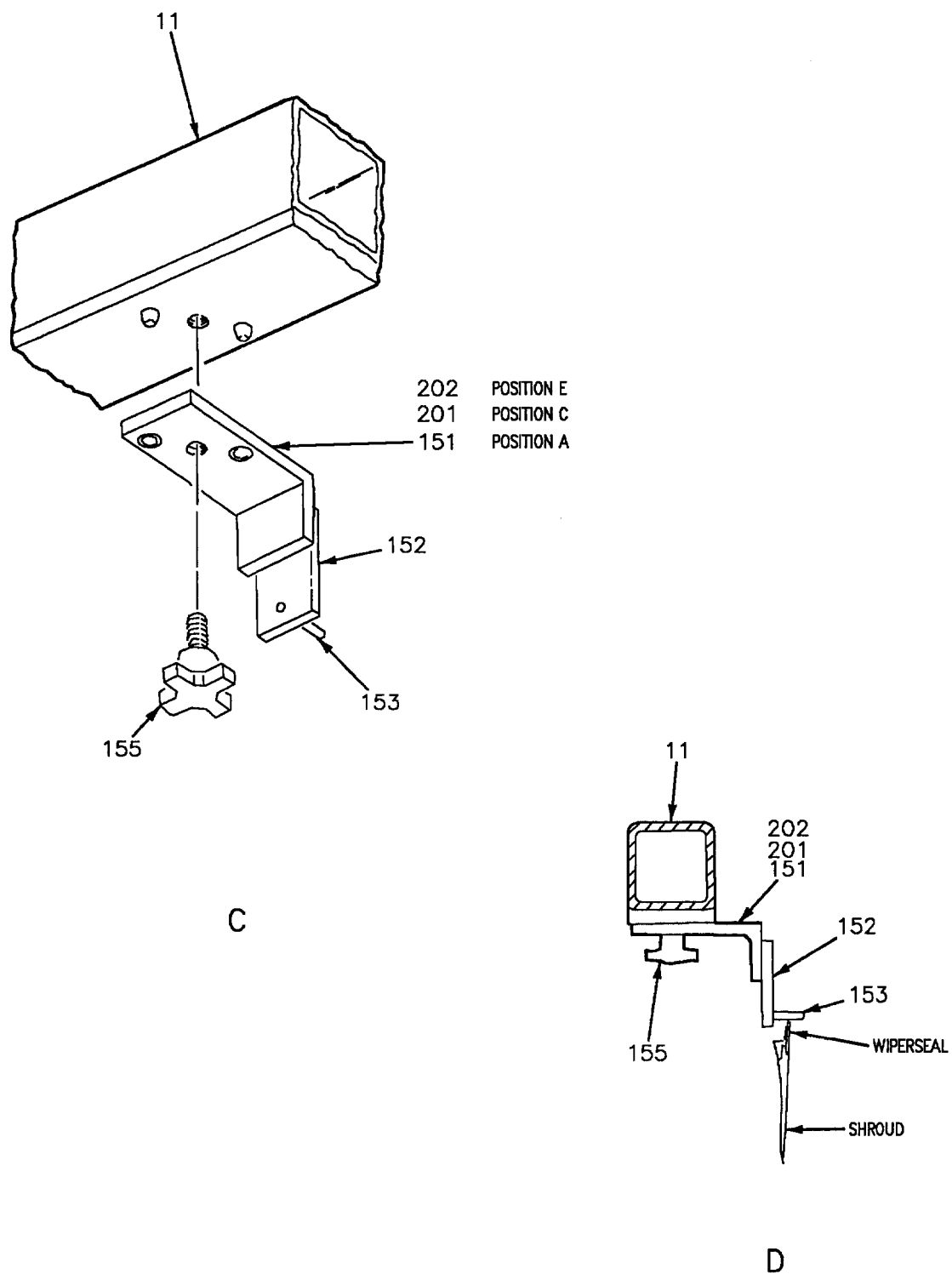


Figure 5. Wiper Seal Replacement (Sheet 3)

Detail No.	Name	Function
11	Frame	Primary support for various detail.
108	Support	Used for inboard trim inspection.
151	Support	Supports and locates details 152 and 153.
152	Locator	Locates detail 153.
153	Pin	Aligns wiper seal.
155	Hand knob	Secures details 151, 201 and 202 in place.
201	Support	Supports and locates details 152 and 153.
202	Support	Supports and locates details 152 and 153.

Figure 5. Wiper Seal Replacement (Sheet 4)

8. OUTBOARD HINGE FITTING REPLACEMENT  
161520 THRU 161944. See figure 6.

**Support Equipment Required**

Nomenclature	Part Number or Type Designation
Clamping Plier	FSC5120
Thickness Gage	FSC5210

**Materials Required**

Nomenclature	Specification or Part Number
Rivet	CRS904B-6

a. Install L-pins (detail 19, 20, 21, or 22) at positions A and E only, view A.

b. Remove damaged hinge fitting.

c. Install replacement hinge fitting with bushing installed at position F with L-pin (detail 19) through locator blocks (details 160 and 181) and hinge fitting, view B.

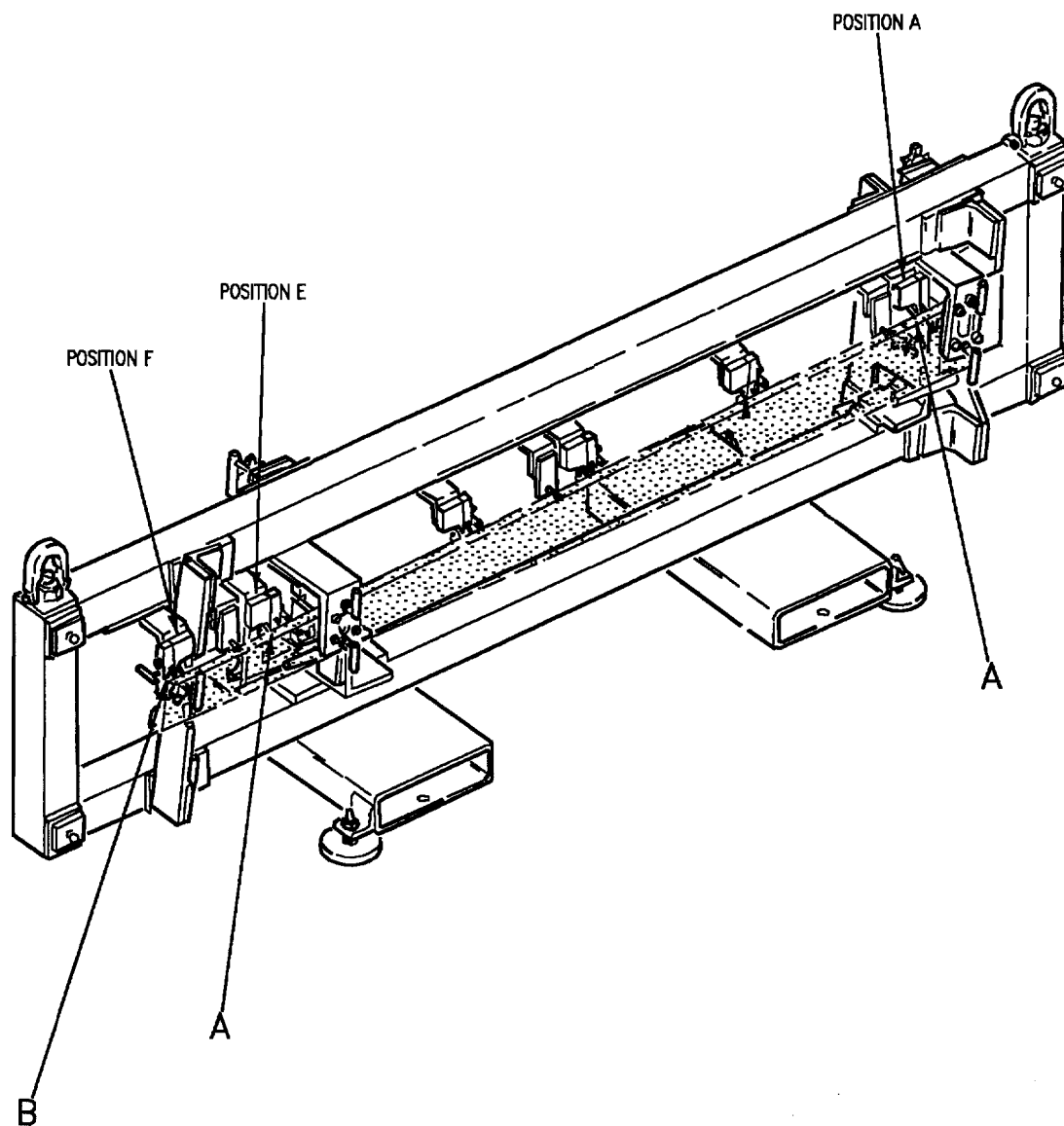
**NOTE**

A 0.001 inch, maximum thickness difference is allowable between the two thickness gages used.

d. Position hinge fitting using two equal thickness gages between hinge fitting lugs and locator block (detail 160), clamp hinge fitting to shroud with clamping pliers, view C.

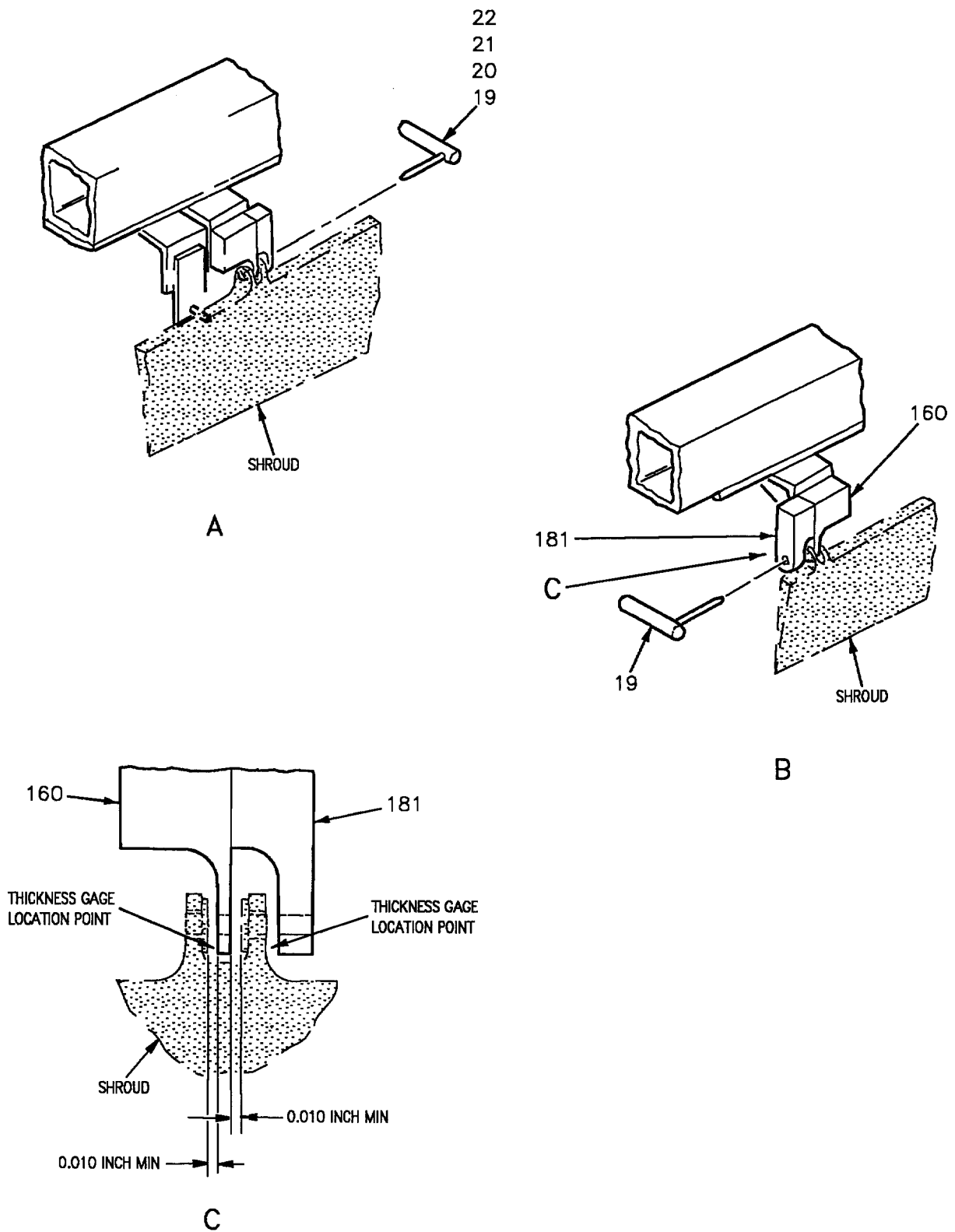
e. Mate drill from shroud to hinge fitting.

f. Rivet hinge fitting to shroud.



09010601

Figure 6. Outboard Hinge Fitting Replacement 161520 THRU 161944 (Sheet 1)



09010602

Figure 6. Outboard Hinge Fitting Replacement 161520 THRU 161944 (Sheet 2)



Detail No.	Name	Function
19	L-pin	Supports shroud in maintenance fixture.
20	L-pin	Supports shroud in maintenance fixture.
21	L-pin	Supports shroud in maintenance fixture.
22	L-pin	Supports shroud in maintenance fixture.
160	Locator block	Locates and aligns shroud in maintenance fixture.
181	Locator block	Locates and aligns shroud in maintenance fixture.

Figure 6. Outboard Hinge Fitting Replacement 161520 THRU 161944 (Sheet 3)

## 9. INBOARD DRIVE ARM REPLACEMENT WITH STANDARD SIZE HOLES IN AILERON SHROUD. See figure 7.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch

### Materials Required

None

a. Position inboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through support (detail 108), arm, drill bushing (detail 116), locators (details 113 and 114), angle bracket (detail 112) and threaded into knurled nut (detail 117) loosely, view A.

b. Position shim (detail 127) between arm and shroud making sure arm is against locating button (detail 118), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Hand tighten knurled nut (detail 117), view A.

d. Install drill plate (detail 130) on angle bracket (detail 126) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 126) on support (detail 13) with hand knob (detail 13) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 130), lock in place with lock screws (detail 136), view A.

g. Align drill plate (detail 130) with shroud by inserting standard size pins (detail 148) through liner bushings (detail 185) into standard size holes in shroud, lock drill plate (detail 130) in place with screws (detail 128), view A.

h. Remove pins (detail 148) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

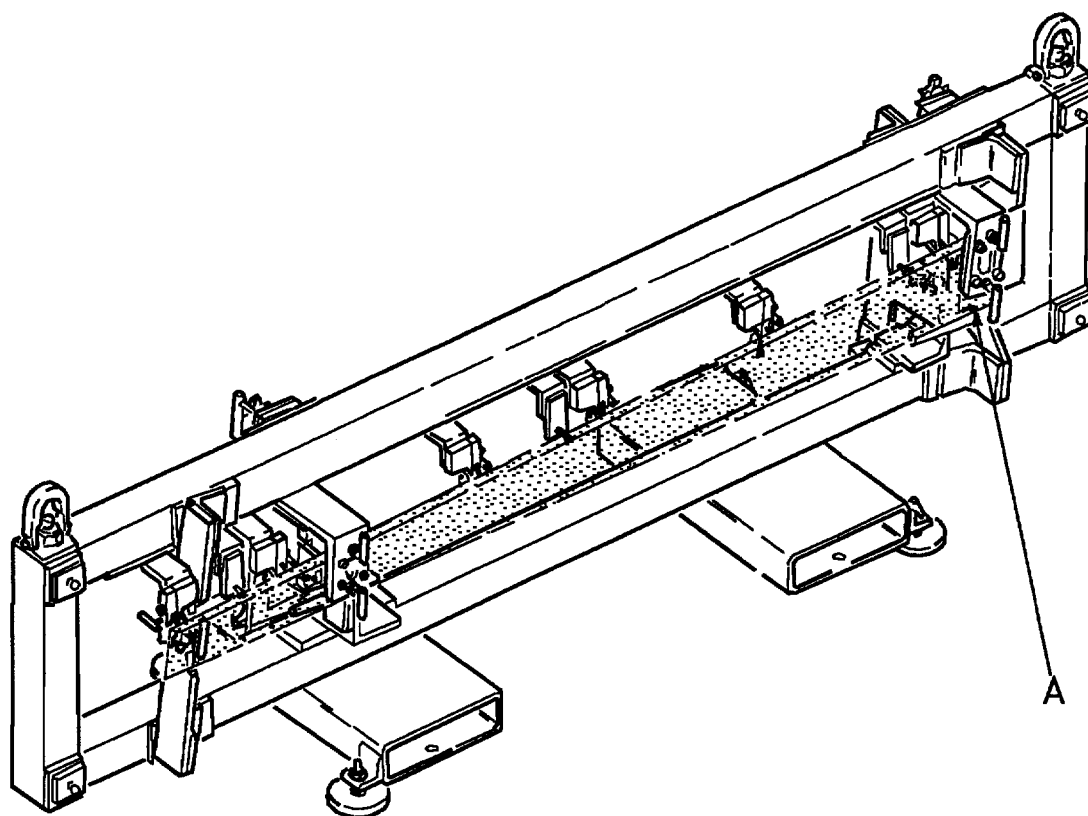
m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushings (detail 185), view A.

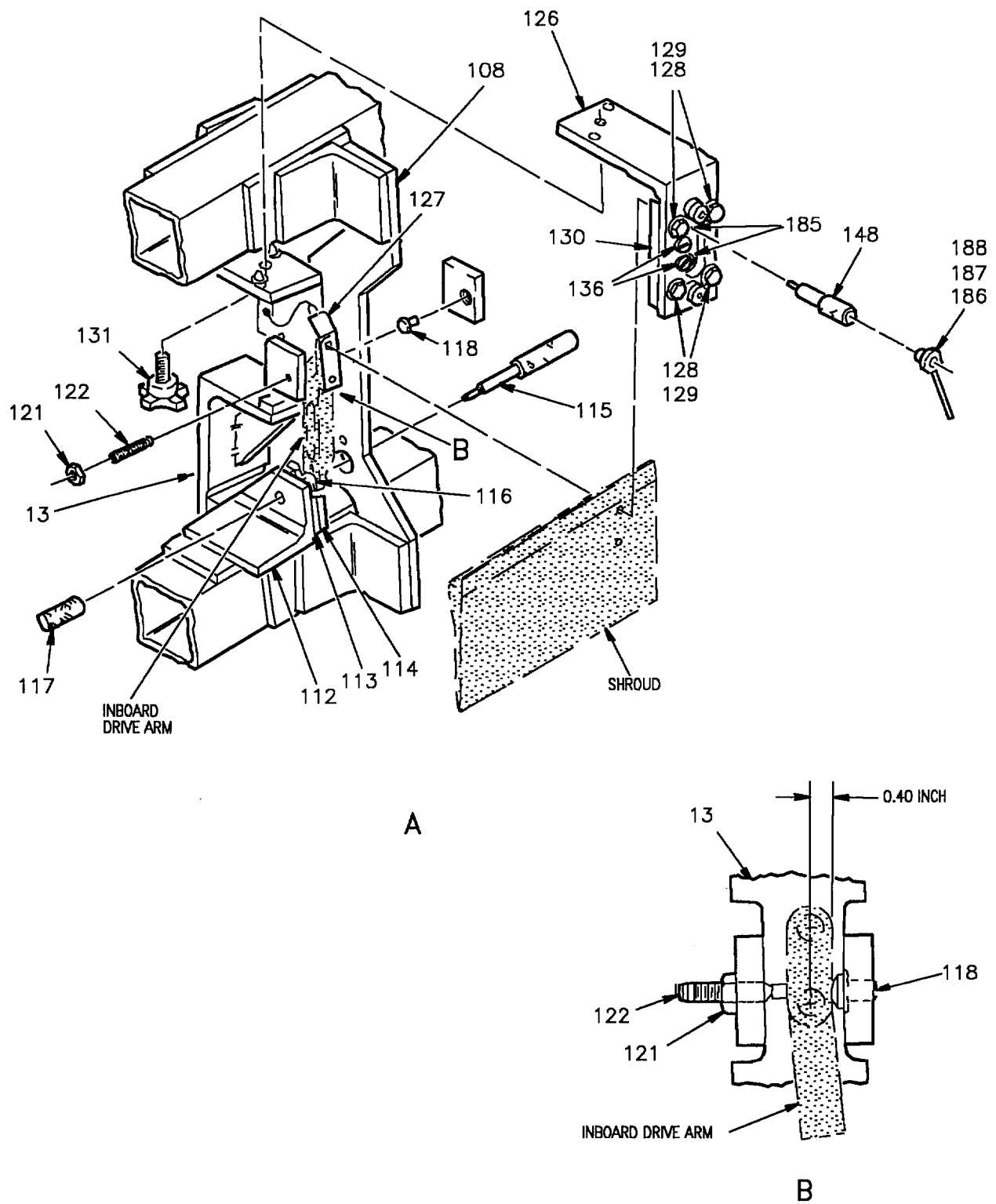
p. Ream a 0.2497 inch hole in arm, view A.

q. Remove shroud and arm from fixture, view A.



09010701

Figure 7. Inboard Drive Arm Replacement with Standard Size Holes (Sheet 1)



09010702

Figure 7. Inboard Drive Arm Replacement with Standard Size Holes (Sheet 2)

Detail No.	Name	Function
13	Support	Supports detail 126 in maintenance fixture.
108	Support	Used for inboard trim inspection.
112	Angle bracket	Supports detail 115.
113	Locator	Supports detail 115.
114	Locator	Supports detail 115.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
118	Locating button	Locates inboard drive arm.
121	Nut	Used to lock detail 122 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
126	Angle bracket	Supports and locates detail 130.
127	Shim	Used to shim between drive arm and shroud.
128	Screw	Secures detail 130 in place.
129	Washer	Secures detail 130 in place.
130	Drill plate	Supports and locates detail 185.
131	Hand knob	Secures detail 126 in place.
136	Lockscrew	Secures detail 185 in place.
148	Pin	Use to align detail 130.
185	Liner bushing	Support detail 186, 187, and 188.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.

Figure 7. Inboard Drive Arm Replacement With Standard Size Holes (Sheet 3)

10. REAMING OF INBOARD DRIVE ARM ATTACH HOLES IN SHROUD TO FIRST AND SECOND OVERSIZE. See figure 8.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Reamer	0.2653 Inch
Reamer	0.2809 Inch

### Materials Required

None

a. Install drill plate (detail 130) on angle bracket (detail 126) with screws (detail 128) and washers (detail 129) loosely, view A.

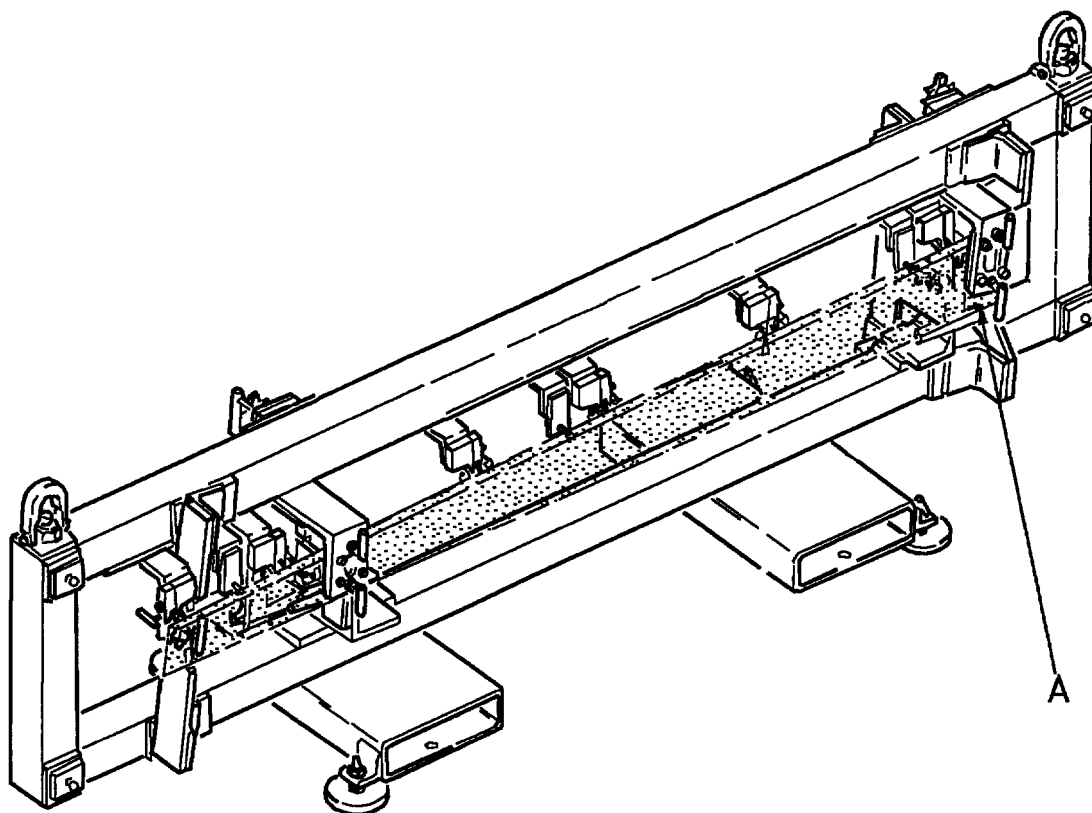
b. Install angle bracket (detail 126) on support (detail 13) with hand knob (detail 131) handtight, view A.

c. Install liner bushings (detail 185) into drill plate (detail 130), lock in place with lock screws (detail 136), view A.

d. Align drill plate (detail 130) by inserting L-pins (detail 197) through angle bracket (detail 126) and drill plate (detail 130), lock drill plate (detail 130) in place with screws (detail 128), view A.

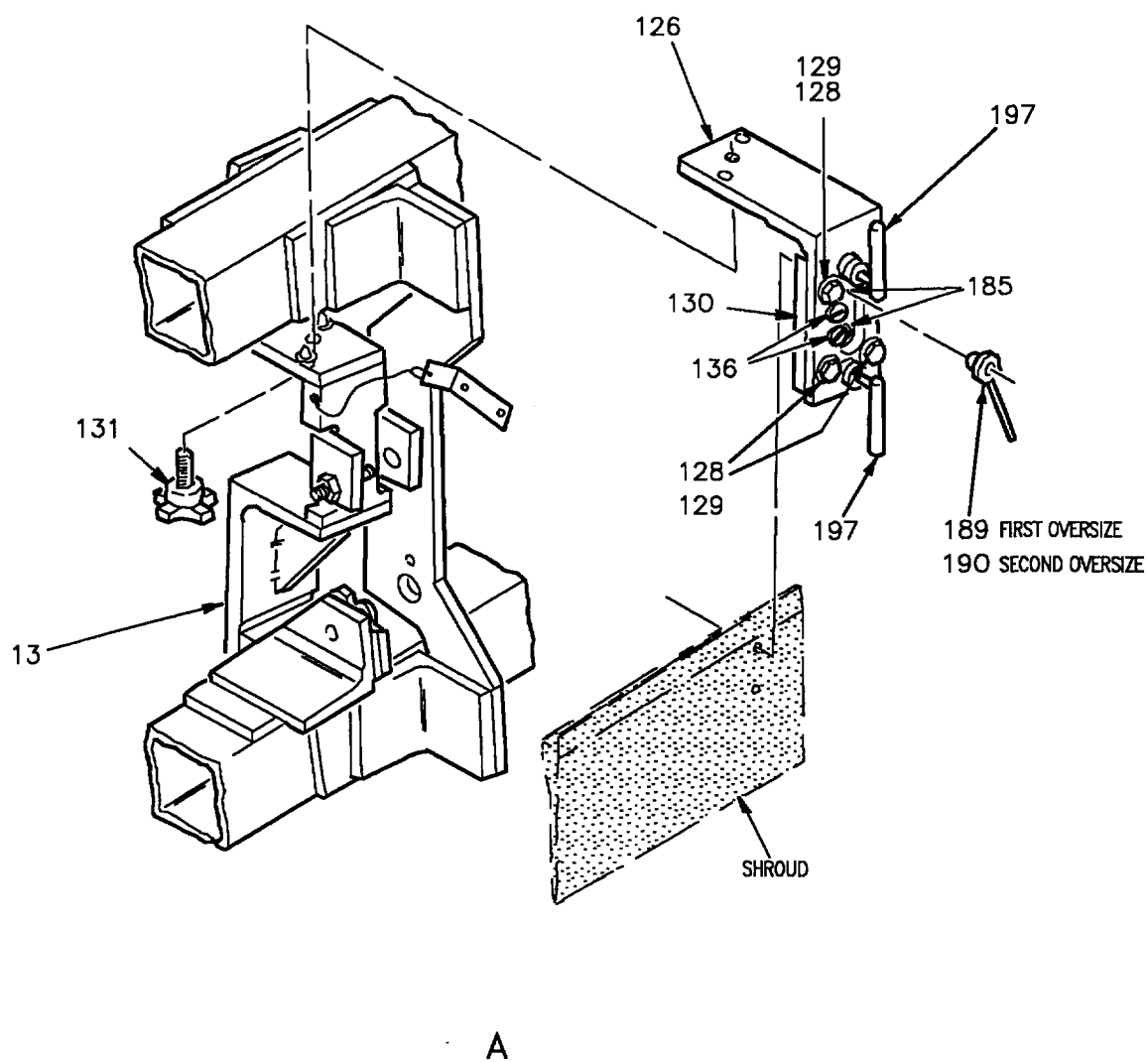
e. First oversize holes - Install drill bushings (detail 189) in liner bushings (detail 185), ream a 0.2653 inch hole in shroud, view A.

f. Second oversize holes - Install drill bushings (detail 190) in liner bushings (detail 185), ream a 0.2809 inch hole in shroud, view A.



09010801

Figure 8. Reaming of Inboard Driver Arm Attach Holes in Shroud to First and Second Oversize (Sheet 1)



09010802

Figure 8. Reaming of Inboard Driver Arm Attach Holes in Shroud to First and Second Oversize (Sheet 2)



Detail No.	Name	Function
13	Support	Supports detail 126 in maintenance fixture.
126	Angle bracket	Supports and locates detail 130.
128	Screw	Secures detail 130 in place.
129	Washer	Secures detail 130 in place.
130	Drill plate	Supports and locates detail 185.
131	Hand knob	Secures detail 126 in place.
136	Lockscrew	Secures detail 185 in place.
185	Liner bushing	Support detail 189 and 190.
189	Drill bushing	Guides reamer into shroud.
190	Drill bushing	Guides reamer into shroud.
197	L-pin	Aligns detail 130.

Figure 8. Reaming of Inboard Driver Arm Attach Holes in Shroud to First and Second Oversize (Sheet 3)

# 11. INBOARD DRIVE ARM REPLACEMENT WITH FIRST OVERSIZE HOLES IN AILERON SHROUD. See figure 9.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch
Reamer	0.2653 Inch

## Materials Required

None

a. Position inboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through support (detail 108), arm, drill bushing (detail 116), locators (detail 113, and 114), angle bracket (detail 112) and threaded into knurled nut (detail 117) loosely, view A.

b. Position shim (detail 127) between arm and shroud making sure arm is against locating button (detail 118), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Hand tighten knurled nut (detail 117), view A.

d. Install drill plate (detail 130) on angle bracket (detail 126) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 126) on support (detail 13) with hand knob (detail 131) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 130), locked in place with lock screws (detail 136), view A.

g. Align drill plate (detail 130) with shroud by inserting first oversize pins (detail 149) through liner bushings (detail 185) into first oversize holes in shroud, lock drill plate (detail 130) in place with screws (detail 128), view A.

h. Remove pins (detail 149) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushings (detail 185), view A.

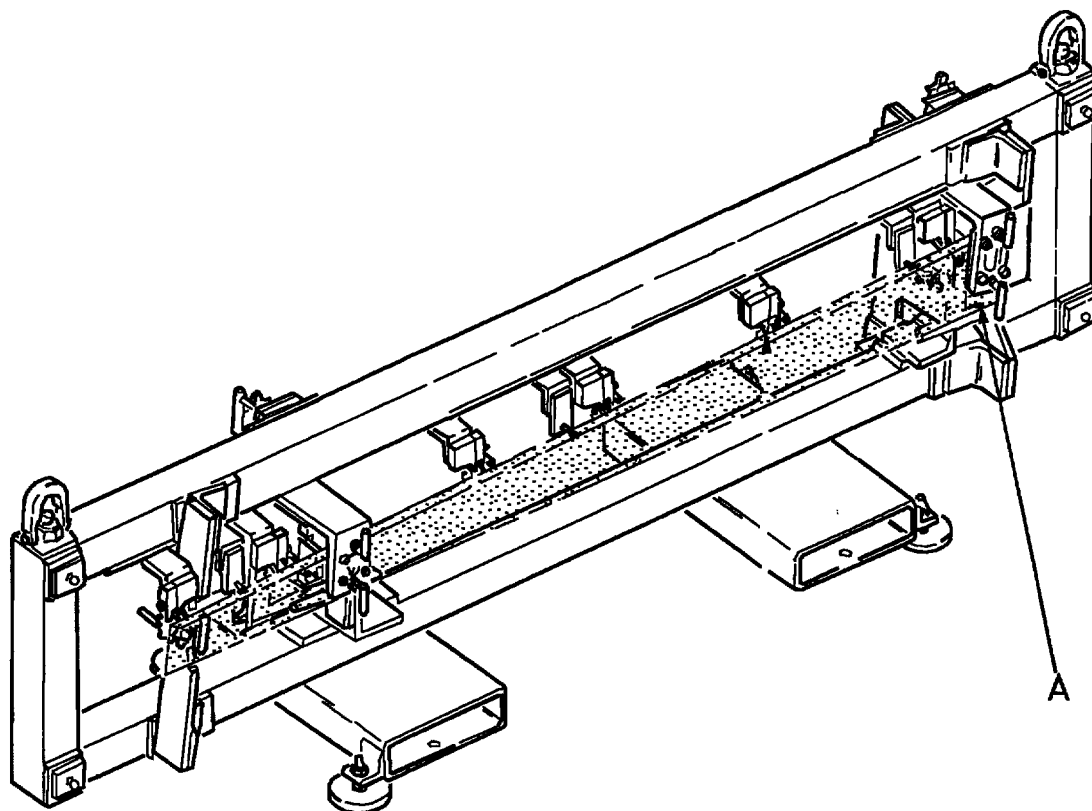
p. Ream a 0.2497 inch hole in arm, view A.

q. Remove drill bushings (detail 188), view A.

r. Install drill bushings (detail 189) in liner bushings (detail 185), view A.

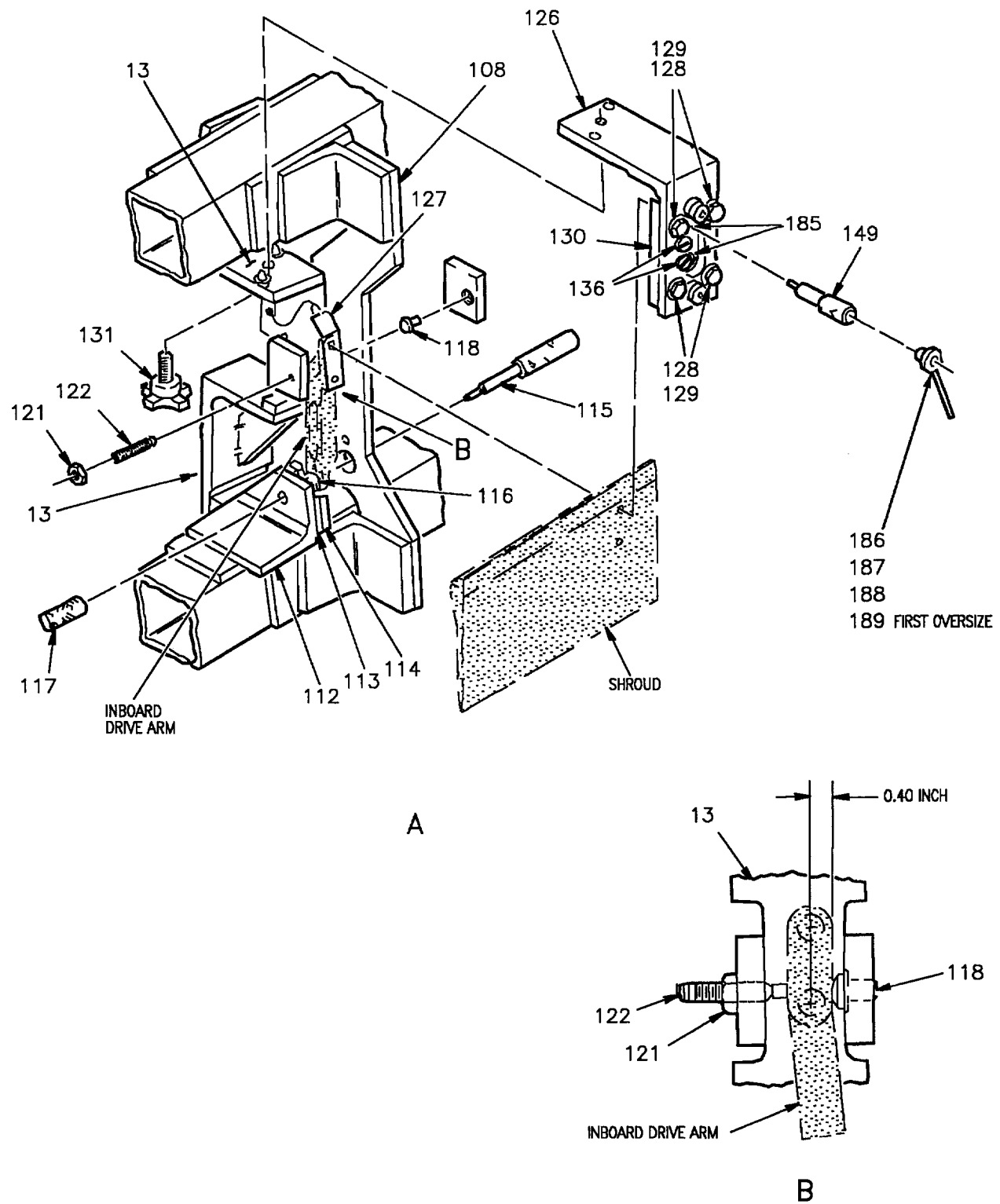
s. Ream a 0.2653 inch hole in arm, view A.

t. Remove shroud and arm from fixture, view A.



09010901

Figure 9. Inboard Drive Arm Replacement with First Oversize Holes (Sheet 1)



09010902

Figure 9. Inboard Drive Arm Replacement with First Oversize Holes (Sheet 2)

Detail No.	Name	Function
13	Support	Supports detail 126 in maintenance fixture.
108	Support	Used for inboard trim inspection.
112	Angle bracket	Supports detail 115.
113	Locator	Supports detail 115.
114	Locator	Supports detail 115.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
118	Locating button	Locates inboard drive arm.
121	Nut	Used to lock detail 122 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
126	Angle bracket	Supports and locates detail 130.
127	Shim	Used to shim between drive arm and shroud.
128	Screw	Secures detail 130 in place.
129	Washer	Secures detail 130 in place.
130	Drill plate	Supports and locates detail 185.
131	Hand Knob	Secures detail 126 in place.
136	Lockscrew	Secures detail 185 in place.
149	Pin	Use to align detail 130.
185	Liner bushing	Support detail 186, 187, 188, and 189.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.
189	Drill bushing	Guides reamer into drive arm.

Figure 9. Inboard Drive Arm Replacement with First Oversize Holes (Sheet 3)

## 12. INBOARD DRIVE ARM REPLACEMENT WITH SECOND OVERSIZE HOLES IN AILERON SHROUD. See figure 10.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch
Reamer	0.2653 Inch
Reamer	0.2809 Inch

### Materials Required

None

a. Position inboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through support (detail 108), arm, drill bushing (detail 116), locators (details 113 and 114), angle bracket (detail 112) and threaded knurled nut (detail 117) loosely, view A.

b. Position shim (detail 127) between arm and shroud making sure arm is against locating button (detail 118), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Hand tighten knurled nut (detail 117), view A.

d. Install drill plate (detail 130) on angle bracket (detail 126) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 126) on support (detail 13) with hand knob (detail 131) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 130), lock in place with lock screws (detail 136), view A.

g. Align drill plate (detail 130) with shroud by inserting second oversize pins (detail 150) through liner bushing (detail 185) into second oversize holes in shroud, lock drill plate (detail 130) in place with screws (detail 128), view A.

h. Remove pins (detail 150) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushing (detail 185), view A.

p. Ream a 0.2497 inch hole in arm, view A.

q. Remove drill bushings (detail 188), view A.

r. Install drill bushings (detail 189) in liner bushing (detail 185), view A.

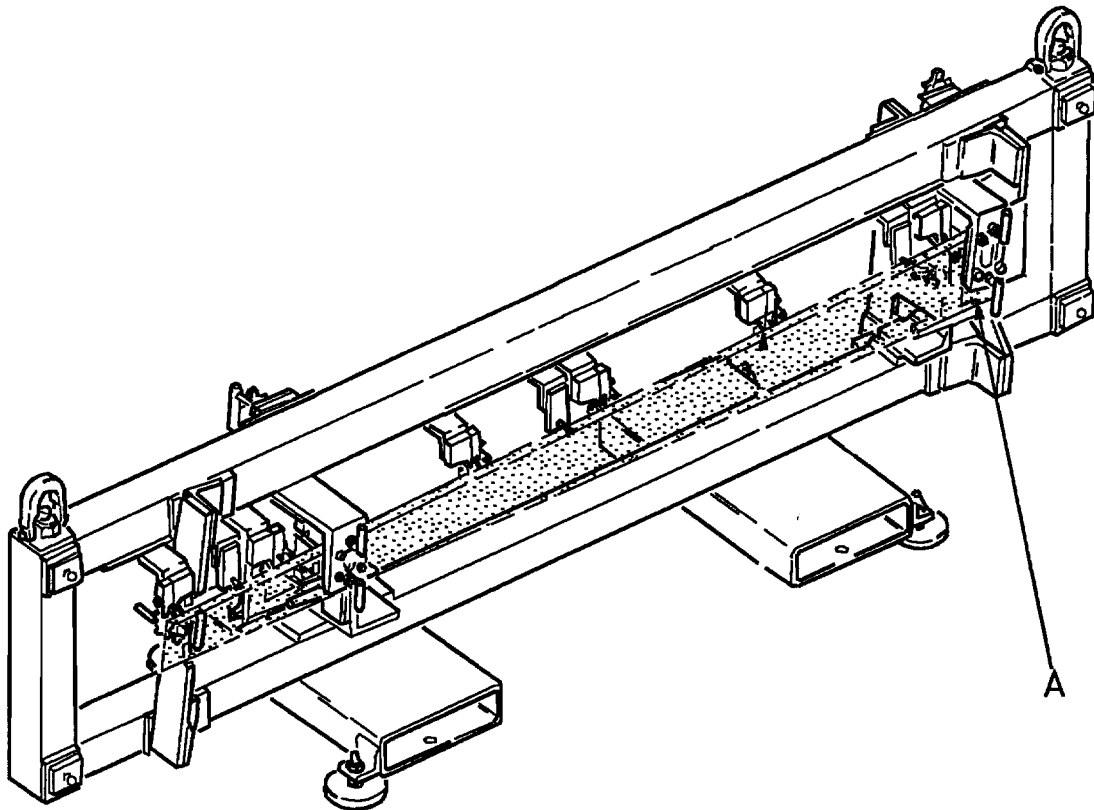
s. Ream a 0.2653 inch hole in arm, view A.

t. Remove drill bushings (detail 189), view A.

u. Install drill bushings (detail 190) in liner bushing (detail 185), view A.

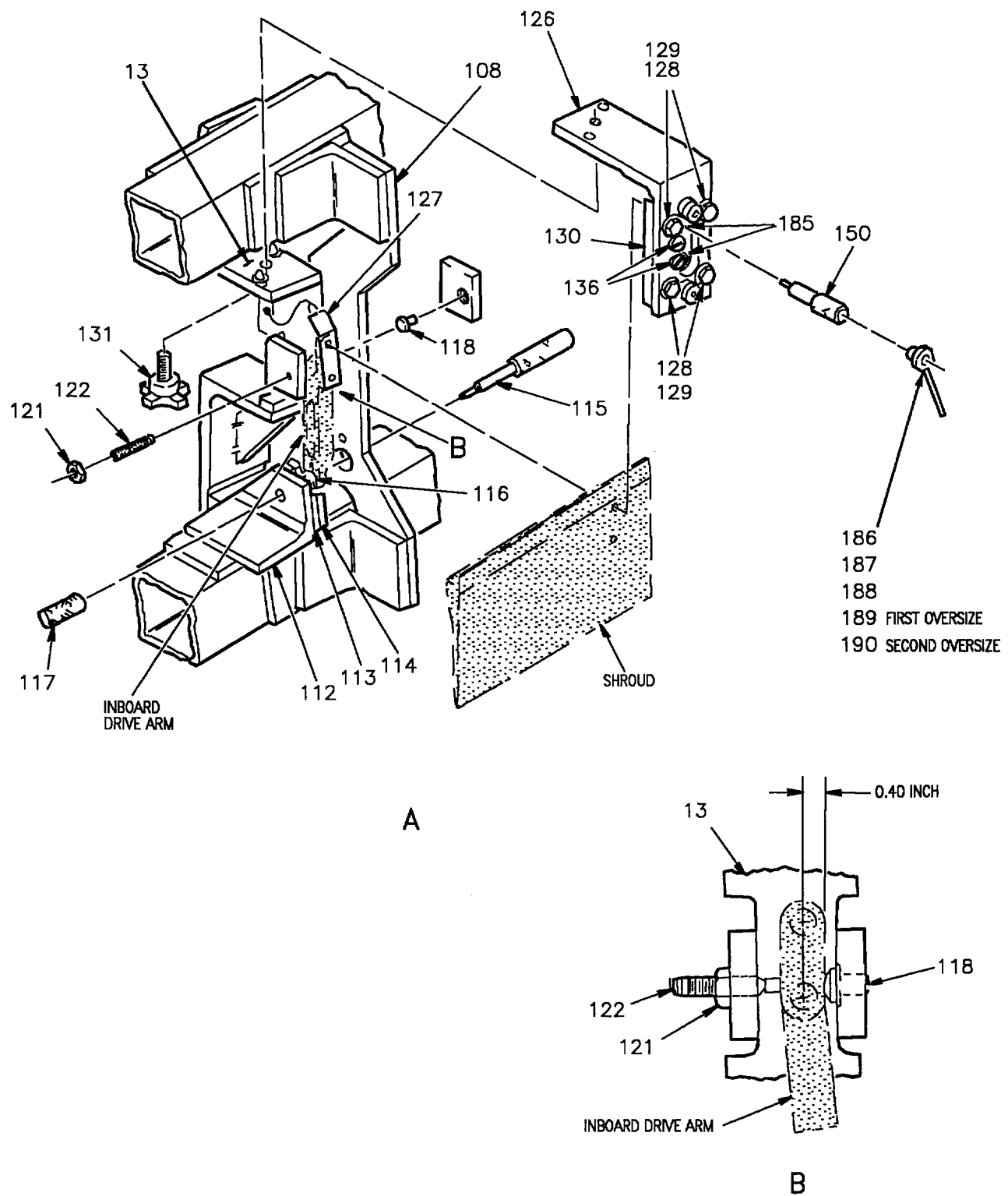
v. Ream a 0.2809 inch hole in arm, view A.

w. Remove shroud and arm from fixture, views A and B.



09011001

Figure 10. Inboard Drive Arm Replacement with Second Oversize Holes (Sheet 1)



09011002

Figure 10. Inboard Drive Arm Replacement with Second Oversize Holes (Sheet 2)



Detail No.	Name	Function
13	Support	Supports detail 126 in maintenance fixture.
108	Support	Used for inboard trim inspection.
112	Angle bracket	Supports detail 115.
113	Locator	Supports detail 115.
114	Locator	Supports detail 115.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
118	Locating button	Locates inboard drive arm.
121	Nut	Used to lock detail 122 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
126	Angle bracket	Supports and locates detail 130.
127	Shim	Used to shim between drive arm and shroud.
128	Screw	Secures detail 130 in place.
129	Washer	Secures detail 130 in place.
130	Drill plate	Supports and locates detail 185.
131	Hand knob	Secures detail 126 in place.
136	Lockscrew	Secures detail 185 in place.
150	Pin	Use to align detail 130.
185	Liner bushing	Support detail 186, 187, 188, 189, and 190.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.
189	Drill bushing	Guides reamer into drive arm.
190	Drill bushing	Guides reamer into drive arm.

Figure 10. Inboard Drive Arm Replacement with Second Oversize Holes (Sheet 3)

13. OUTBOARD DRIVE ARM REPLACEMENT WITH STANDARD SIZE HOLES IN AILERON SHROUD. See figure 11.

### Support Equipment Required

Part Number or Type Designation	Nomenclature
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch

### Materials Required

None

a. Position outboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through arm, drill bushing (detail 116), locators (details 142 and 143), angle bracket (detail 141) and threaded into knurled nut (detail 117) loosely, view A.

b. Position shim (detail 145) between arm and shroud, making sure arm is against locating button (detail 140), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Hand tighten knurled nut (detail 117), view A.

d. Install drill plate (detail 147) on angle bracket (detail 146) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 146) on support (detail 12) with hand knob (detail 131) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 147), lock in place with lockscrews (detail 136), view A.

g. Align drill plate (detail 147) with shroud by inserting standard size pins (detail 148) through liner bushings (detail 185) into standard size holes in shroud, lock drill plate (detail 147) in place with screws (detail 128), view A.

h. Remove pins (detail 148) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

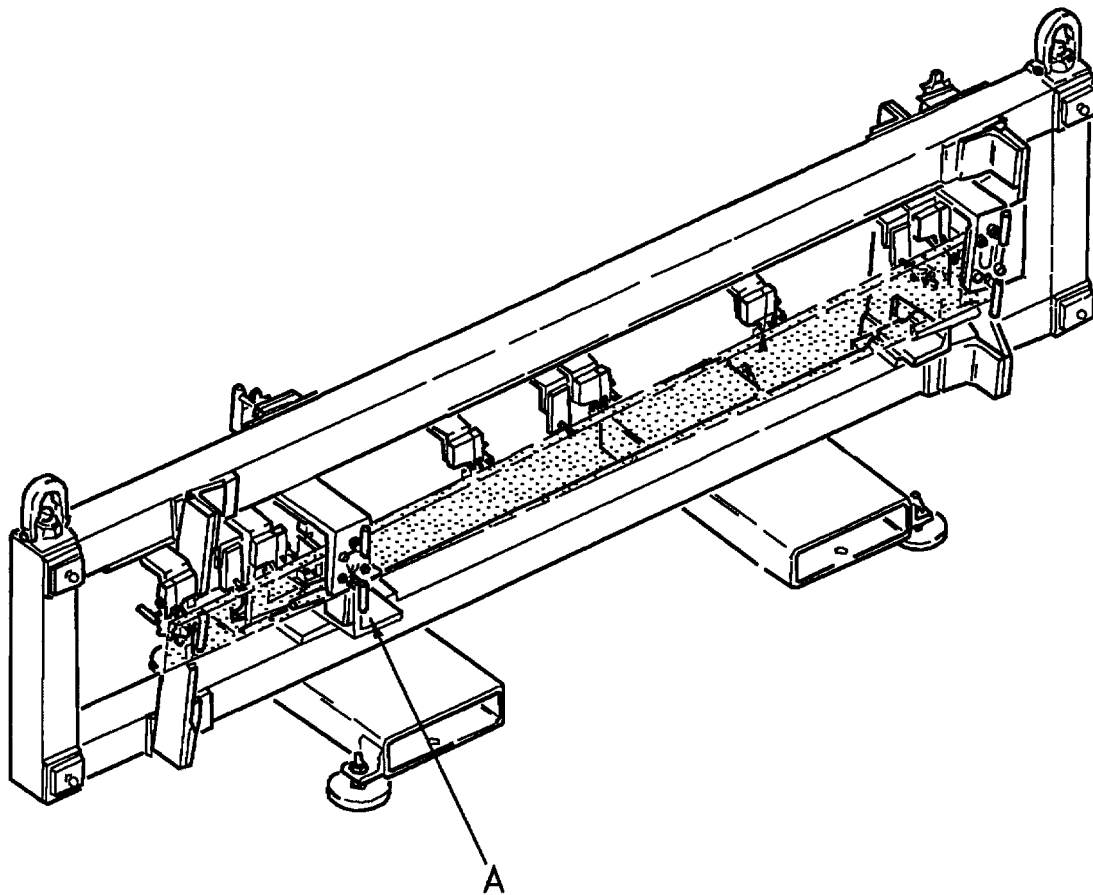
m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushing (detail 185), view A.

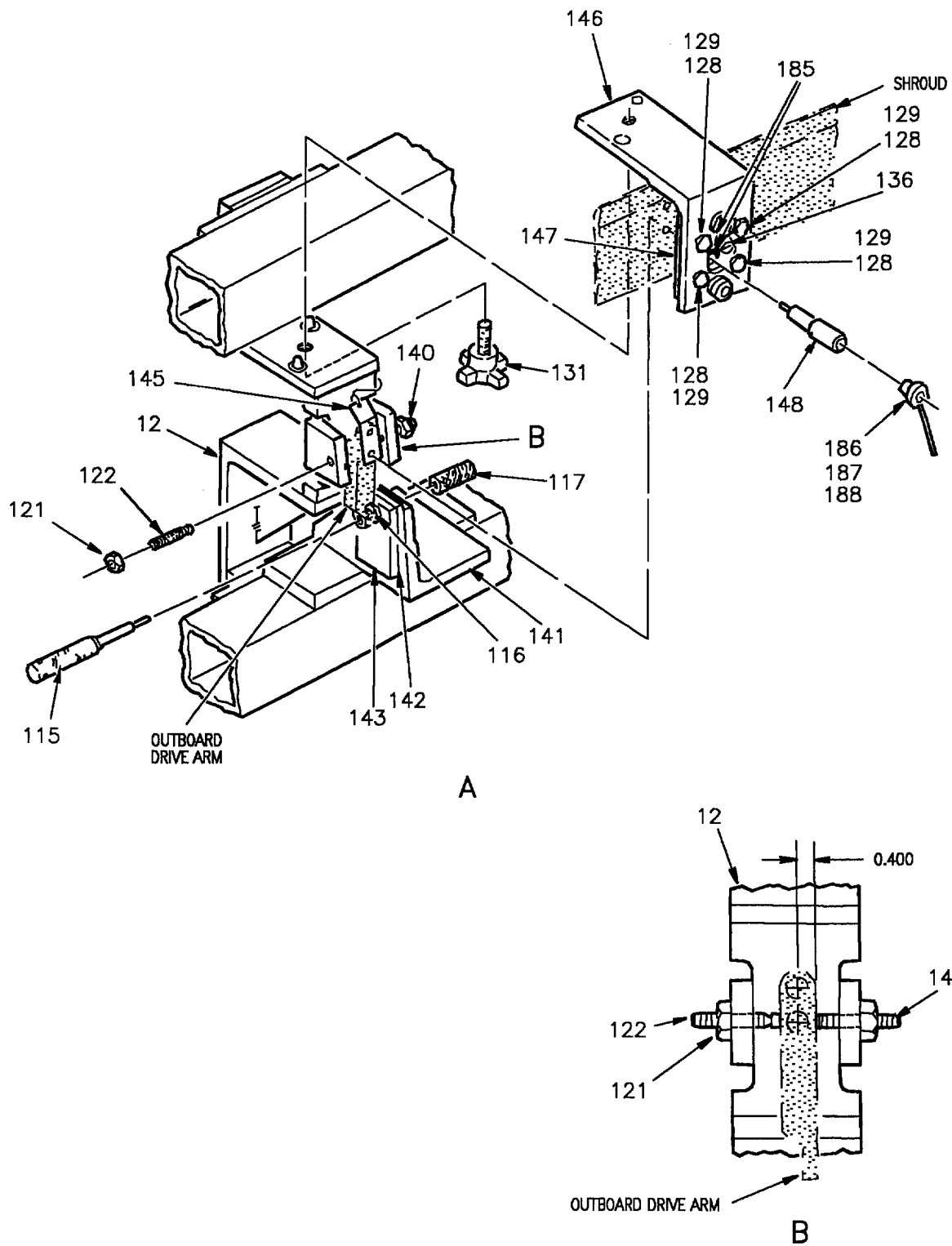
p. Ream a 0.2497 inch hole in arm, view A.

q. Remove shroud and arm from fixture.



09011101

Figure 11. Outboard Drive Arm Replacement with Standard Size Holes (Sheet 1)



09011102

Figure 11. Outboard Drive Arm Replacement with Standard Size Holes (Sheet 2)

Detail No.	Name	Function
12	Support	Supports detail 126 in maintenance fixture.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
121	Nut	Used to lock detail 112 and 140 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
128	Screw	Secures detail 147 in place.
129	Washer	Secures detail 147 in place.
131	Hand knob	Secures detail 146 in place.
136	Lockscrew	Secures detail 185 in place.
140	Locating button	Locates outboard drive arm.
141	Angle bracket	Supports detail 115.
142	Locator	Supports detail 115.
143	Locator	Supports detail 115.
145	Shim	Used to shim between drive arm and shroud.
146	Angle bracket	Supports and locates detail 147.
147	Drill plate	Supports and locates detail 185.
148	Pin	Used to align detail 147.
185	Liner bushing	Support detail 186, 187, and 188.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.

Figure 11. Outboard Drive Arm Replacement with Standard Size Holes (Sheet 3)

14. REAMING OF OUTBOARD DRIVE ARM  
ATTACH HOLES IN AILERON SHROUD TO FIRST  
AND SECOND OVERSIZE. See figure 12.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Reamer	0.2653 Inch
Reamer	0.2809 Inch

### Materials Required

None

a. Install drill plate (detail 147) on angle bracket (detail 146) with screws (detail 128) and washers (detail 129), view A.

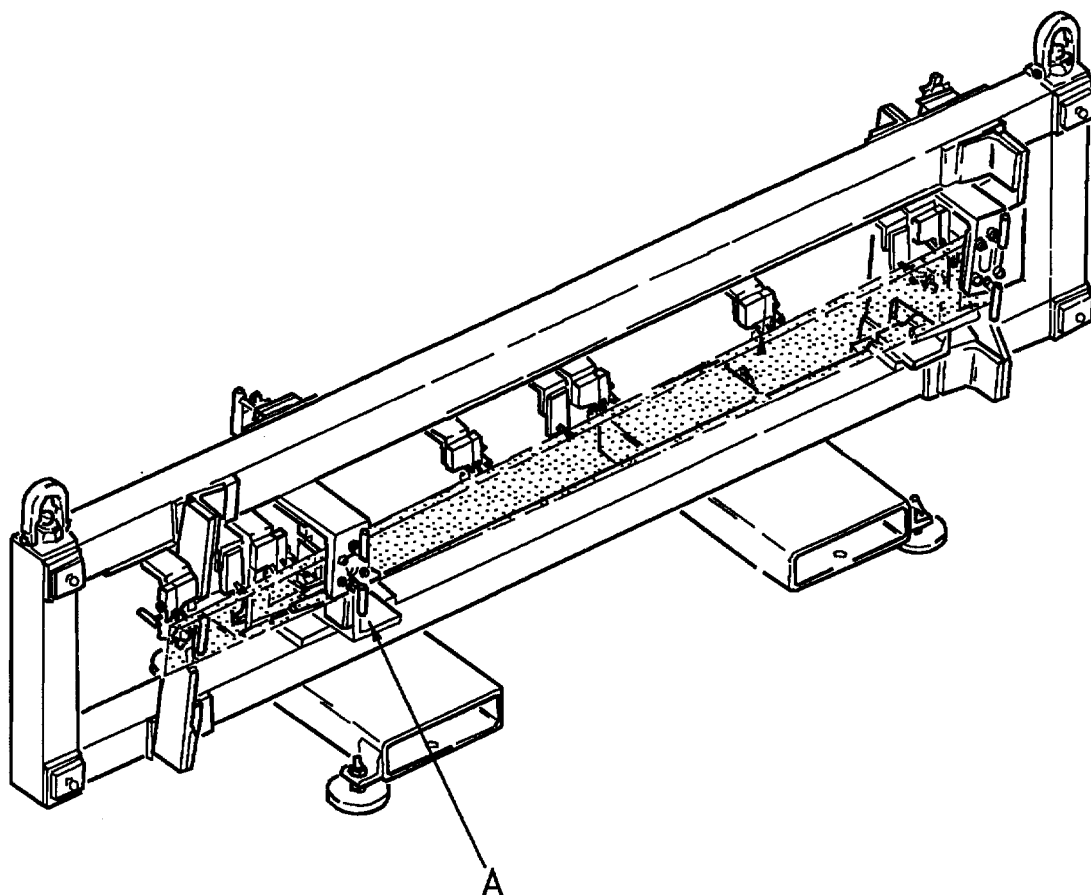
b. Install angle bracket (detail 146) on support (detail 12) with hand knob (detail 131) handtight, view A.

c. Install liner bushings (detail 185) into drill plate (detail 147), lock in place with lockscrew (detail 136), view A.

d. Align drill plate (detail 147) by inserting L-pins (detail 197) through angle bracket (detail 146) and drill plate (detail 147), lock drill plate (detail 147) in place with screws (detail 128), view A.

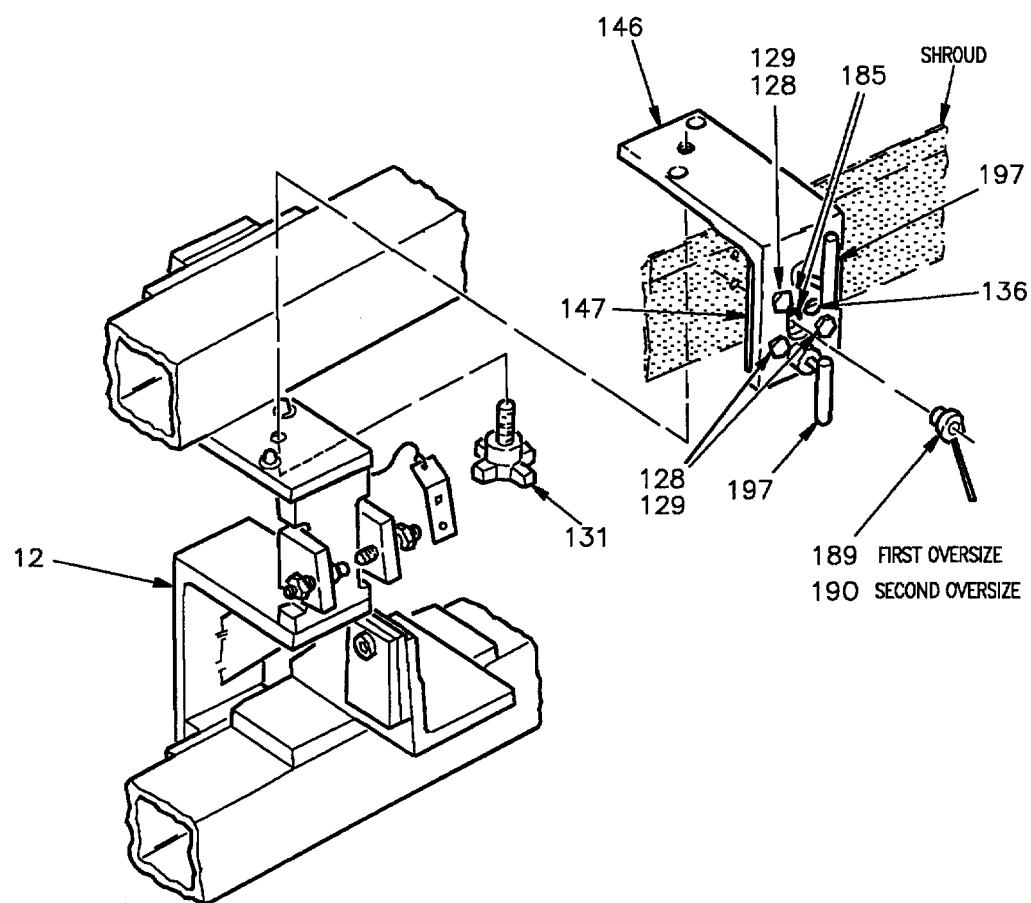
e. First oversize holes - Install drill bushings (detail 189) in liner bushings (detail 185), ream a 0.2653 inch hole in shroud.

f. Second oversize holes - Install drill bushings (detail 190) in liner bushings (detail 185), ream a 0.2809 inch hole in shroud.



09011201

Figure 12. Reaming of Outboard Drive Arm Attach Holes in Shroud to First and Second Oversize (Sheet 1)



A

09011202

Figure 12. Reaming of Outboard Drive Arm Attach Holes in Shroud to First and Second Oversize (Sheet 2)



Detail No.	Name	Function
12	Support	Supports detail 146 in maintenance fixture.
128	Screw	Secures detail 147 in place.
129	Washer	Secures detail 147 in place.
131	Hand knob	Secures detail 146 in place.
136	Lockscrew	Secures detail 185 in place.
146	Angle Bracket	Supports and locates detail 147.
147	Drill plate	Supports and locates detail 185.
185	Liner bushing	Supports detail 189 and 190.
189	Drill bushing	Guides reamer into shroud.
190	Drill bushing	Guides reamer into shroud.
197	L-pin	Aligns detail 147.

Figure 12. Reaming of Outboard Drive Arm Attach Holes in Shroud to First and Second Oversize (Sheet 3)

15. OUTBOARD DRIVE ARM REPLACEMENT WITH FIRST OVERSIZE HOLES IN AILERON SHROUD. See figure 13.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch
Reamer	0.2653 Inch

### Materials Required

None

a. Position outboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through arm, drill bushing (detail 116), locators (details 142 and 143), angle bracket (detail 141) and threaded into knurled nut (detail 117) loosely, view A.

b. Position shim (detail 145) between arm and shroud, making sure arm is against locating button (detail 140), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Hand tighten knurled nut (detail 117), view A.

d. Install drill plate (detail 147) on angle bracket (detail 146) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 146) on support (detail 12) with hand knob (detail 131) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 147), lock in place with lockscrews (detail 136), view A.

g. Align drill plate (detail 147) with shroud by inserting first oversize pins (detail 149) through liner bushings (detail 185) into first oversize holes in shroud, lock drill plate (detail 147) in place with screws (detail 128), view A.

h. Remove first oversize pins (detail 149) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushings (detail 185), view A.

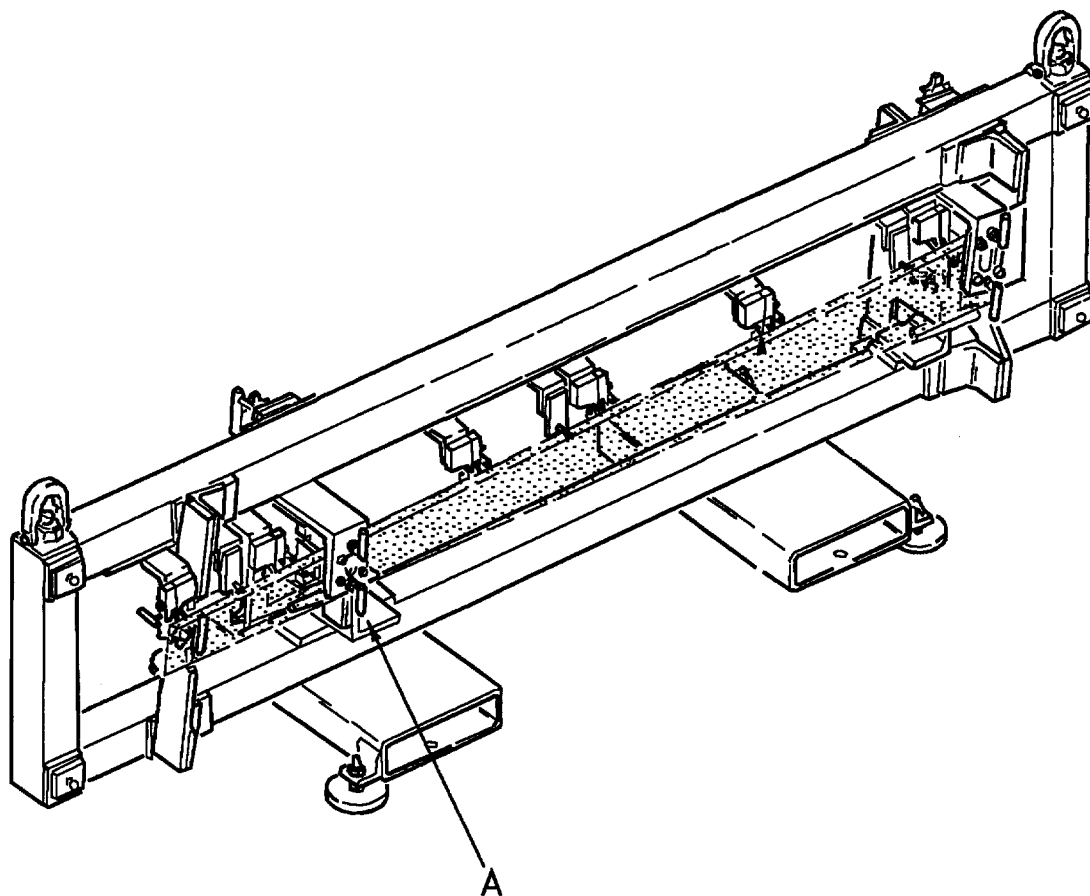
p. Ream a 0.2497 inch hole in arm, view A.

q. Remove drill bushings (detail 188), view A.

r. Install drill bushing (detail 189) in liner bushings (detail 185), view A.

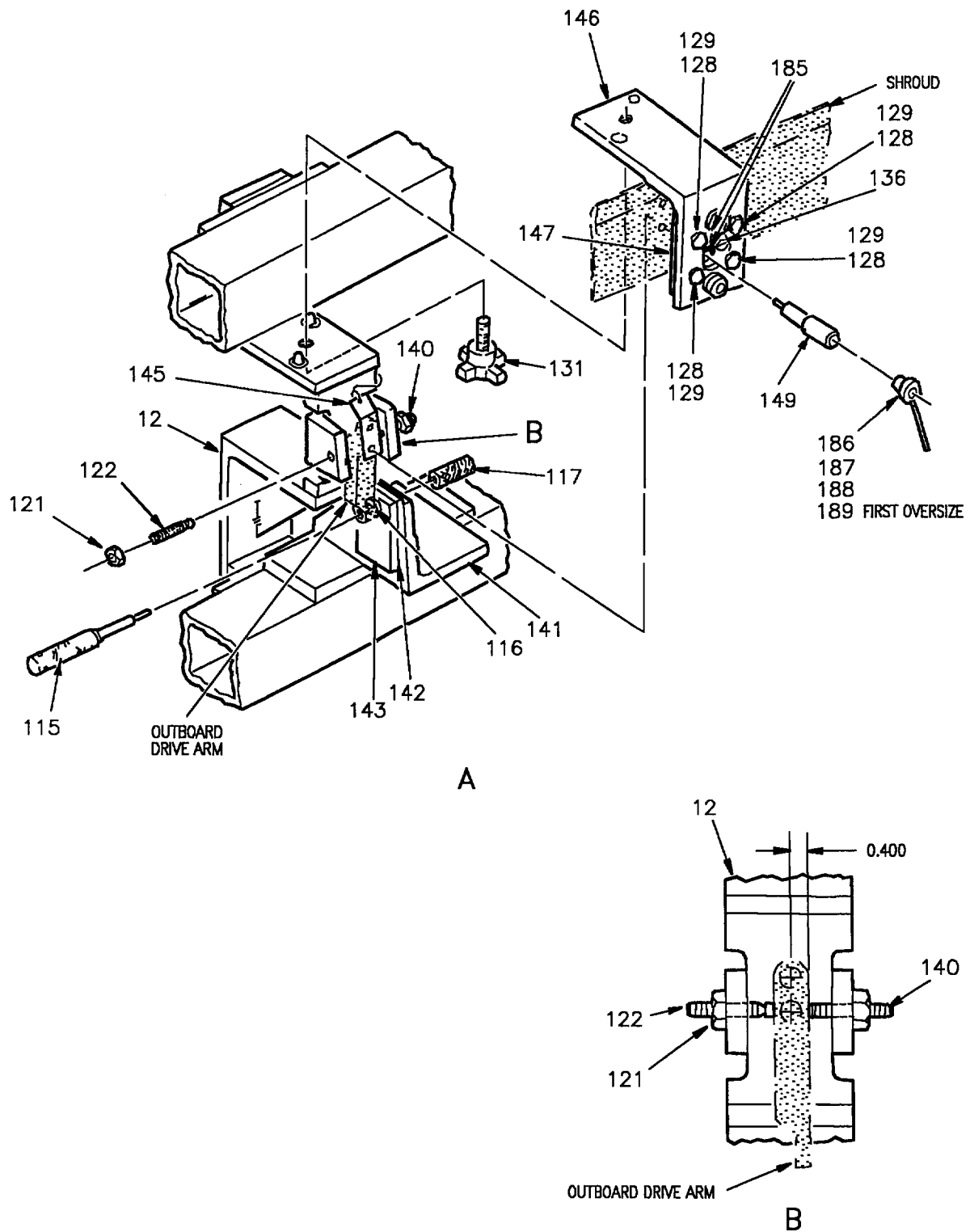
s. Ream a 0.2653 inch hole in arm, view A.

t. Remove shroud and arm from fixture.



09011301

Figure 13. Outboard Drive Arm Replacement with First Oversize Holes (Sheet 1)



09011302

Figure 13. Outboard Drive Arm Replacement with First Oversize Holes (Sheet 2)

Detail No.	Name	Function
12	Support	Supports detail 146 in maintenance fixture.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
121	Nut	Used to lock detail 122 and 140 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
128	Screw	Secures detail 147 in place.
129	Washer	Secures detail 147 in place.
131	Hand knob	Secures detail 146 in place.
136	Lockscrew	Secures detail 185 in place.
140	Locating button	Locates outboard drive arm.
141	Angle bracket	Supports detail 115.
142	Locator	Supports detail 115.
143	Locator	Supports detail 115.
145	Shim	Used to shim between drive arm and shroud.
146	Angle bracket	Supports and locates detail 147.
147	Drill plate	Supports and locates detail 185.
149	Pin	Used to align detail 147.
185	Liner bushing	Support detail 186, 187, 188, and 189.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.
189	Drill bushing	Guides reamer into drive arm.

Figure 13. Outboard Drive Arm Replacement with First Oversize Holes (Sheet 3)

# 16. OUTBOARD DRIVE ARM REPLACEMENT WITH SECOND OVERSIZE HOLES IN AILERON SHROUD. See figure 14.

## Support Equipment Required

Part Number or Type Designation	Nomenclature
Drill Bit	0.1285 Inch
Drill Bit	0.2344 Inch
Reamer	0.2497 Inch
Reamer	0.2653 Inch
Reamer	0.2809 Inch

## Materials Required

None

a. Position outboard drive arm (arm) against drill bushing (detail 116), insert pin (detail 115) through arm, drill bushing (detail 116), locators (details 143 and 142), angle bracket (detail 141) and threaded into knurled nut (detail 117) loosely, view A.

b. Position shim (detail 145) between arm and shroud, making sure arm is against locating button (detail 140), lock arm in place with socket head screw (detail 122) and tighten nut (detail 121), views A and B.

c. Handtighten knurled nut (detail 117), view A.

d. Install drill plate (detail 147) on angle bracket (detail 146) with screws (detail 128) and washers (detail 129) loosely, view A.

e. Install angle bracket (detail 146) on support (detail 12) with hand knob (detail 131) handtight, view A.

f. Install liner bushings (detail 185) into drill plate (detail 147), lock in place with lockscrews (detail 136), view A.

g. Align drill plate (detail 147) with shroud by inserting second oversize pins (detail 150) through liner bushings (detail 185) into second oversize holes in shroud, lock drill plate (detail 147) in place with screws (detail 128), view A.

h. Remove second oversize pins (detail 150) from liner bushings (detail 185), view A.

i. Install drill bushings (detail 186) in liner bushings (detail 185), view A.

j. Drill a 0.1285 inch hole in arm, view A.

k. Remove drill bushings (detail 186), view A.

l. Install drill bushings (detail 187) in liner bushings (detail 185), view A.

m. Drill a 0.2344 inch hole in arm, view A.

n. Remove drill bushings (detail 187), view A.

o. Install drill bushings (detail 188) in liner bushings (detail 185), view A.

p. Ream a 0.2497 inch hole in arm, view A.

q. Remove drill bushings (detail 188), view A.

r. Install drill bushings (detail 189) in liner bushings (detail 185), view A.

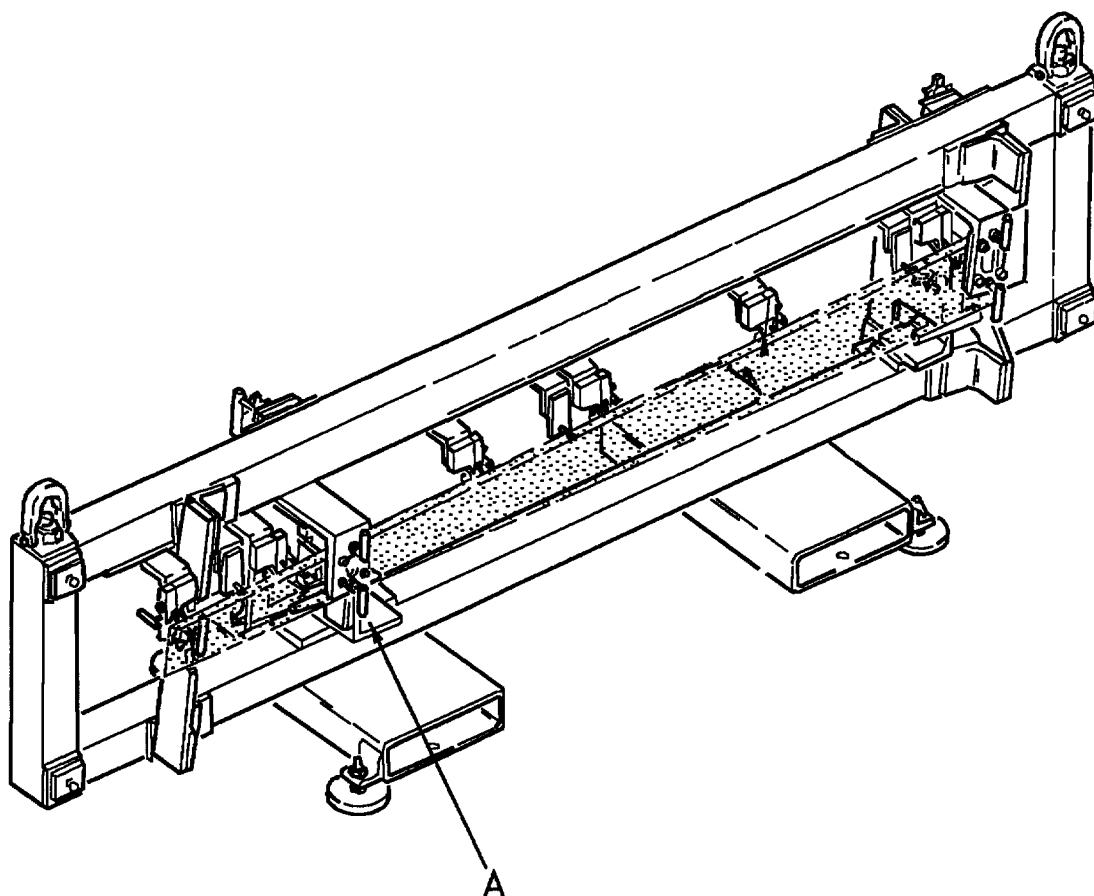
s. Ream a 0.2653 inch hole in arm, view A.

t. Remove drill bushings (detail 189), view A.

u. Install drill bushings (detail 190) in liner bushings (detail 185), view A.

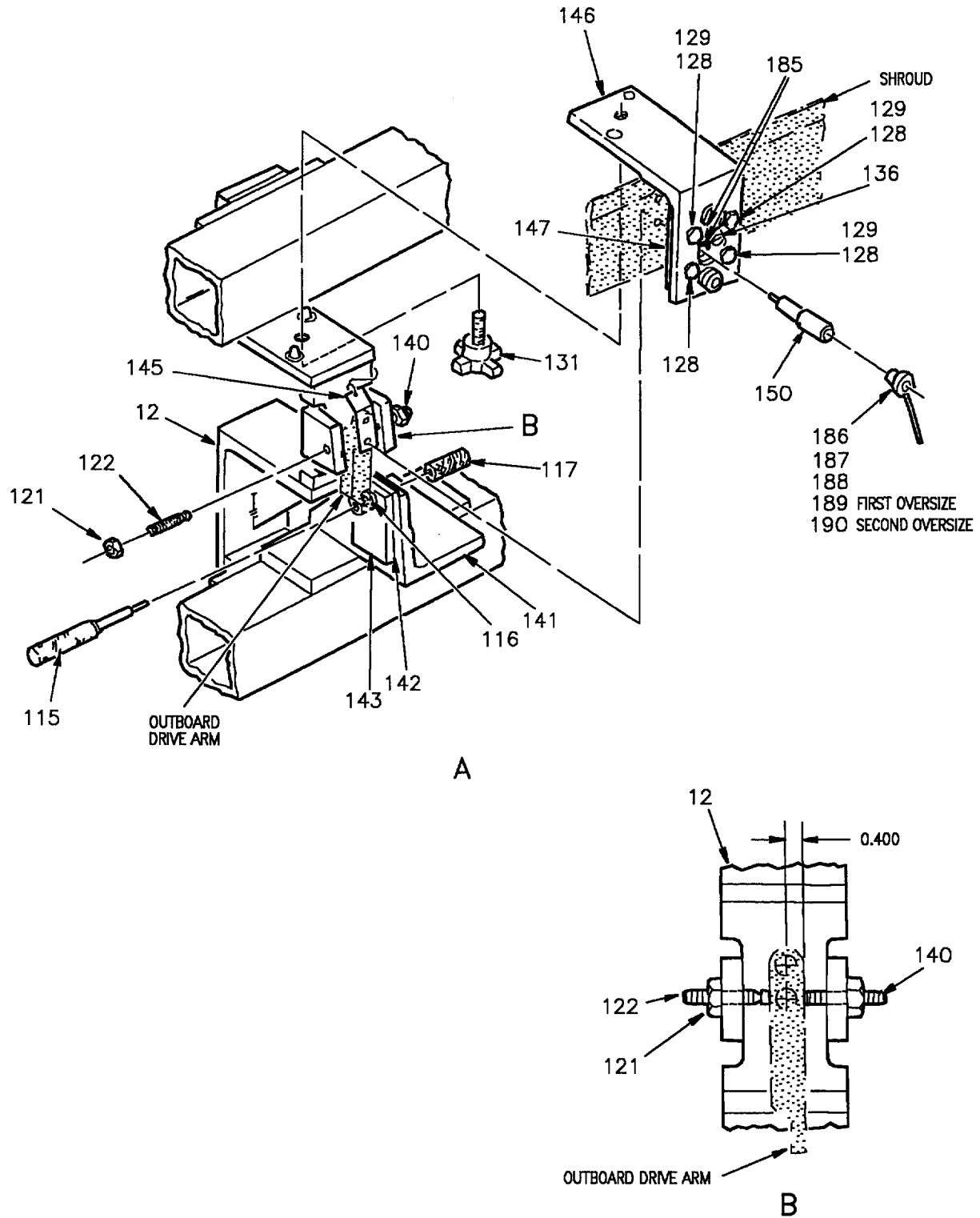
v. Ream a 0.2809 inch hole in arm, view A.

w. Remove shroud and arm from fixture.



09011401

Figure 14. Outboard Drive Arm Replacement with Second Oversize Holes (Sheet 1)



09011402

Figure 14. Outboard Drive Arm Replacement with Second Oversize Holes (Sheet 2)



Detail No.	Name	Function
12	Support	Supports detail 146 in maintenance fixture.
115	Pin	Locates and supports drive arm.
116	Drill bushing	Locates drive arm.
117	Knurled nut	Secures detail 115 in place.
121	Nut	Used to lock detail 122 and 140 in place.
122	Socket head screw	Locates drive arm in correct position for drilling.
128	Screw	Secures detail 147 in place.
129	Washer	Secures detail 147 in place.
131	Hand knob	Secures detail 146 in place.
136	Lockscrew	Secures detail 185 in place.
140	Locating button	Locates outboard drive arm.
141	Angle bracket	Supports detail 115.
142	Locator	Supports detail 115.
143	Locator	Supports detail 115.
145	Shim	Used to shim between drive arm and shroud.
146	Angle bracket	Supports and locates detail 147.
147	Drill plate	Supports and locates detail 185.
150	Pin	Used to align detail 147.
185	Liner bushing	Support detail 186, 187, 188, 189, and 190.
186	Drill bushing	Guides drill into drive arm.
187	Drill bushing	Guides drill into drive arm.
188	Drill bushing	Guides reamer into drive arm.
189	Drill bushing	Guides reamer into drive arm.
190	Drill bushing	Guides reamer into drive arm.

Figure 14. Outboard Drive Arm Replacement with Second Oversize Holes (Sheet 3)

17. **HINGE BUSHING REPLACEMENT FIRST AND SECOND OVERSIZE.** See figure 15. For reamer part number/diameter, view E.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Repair Kit, Aileron Shroud	RE274170103

### Materials Required

Nomenclature	Specification or Part Number
Bushing, First Oversize	10M20-207
Bushing, Second Oversize	10M20-208
Thickness Gage	-

a. Install L-pins (detail 19) through locator block (detail 158, 159 or 198), shroud hinge lug and locator block (detail 161, 165 or 169) at position A, B, or C, view A or B.

b. Install L-pins (detail 19) through locator block (detail 160, 200 or 199), shroud hinge lug and locator block (detail 181, 177 or 173) at position D, E or F, view A, B or C.

### NOTE

A 0.001 inch thickness difference maximum is allowed between the two feeler gages used.

c. Positioning of shroud for inboard and outboard location in maintenance fixture by using two equal feeler gages (minimum feeler gage thickness is 0.010 inch) between locator blocks (detail 159 or 158 and 200 or 160) and shroud hinge lugs with bushing removed or installed at any position A or B and E or F.

d. Remove damaged bushings.

e. First oversize - using aileron repair kit, ream hole in hinge lugs and install first oversize replacement bushings per substeps below:

(1) Position A - install locator block (detail 208), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 208) and install locator block (detail 163). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view A.

(2) Position B - install locator block (detail 210), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 210) and install locator block (detail 167). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view B.

(3) Position C - install locator blocks (detail 212), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 212), install locator block (detail 171). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view A.

(4) Position D - install locator blocks (detail 214), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 214), install locator block (detail 175). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view B.

(5) Position E - install locator blocks (detail 216), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 216), install locator block (detail 179). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view A.

(6) Position F - install locator blocks (detail 218), ream hinge lugs with a 0.3255 inch reamer. Remove locator block (detail 218), install locator block (detail 183). Ream hinge lugs with a 0.3281 inch reamer. Install replacement first oversize bushings, view C.

f. Second oversize - using aileron repair kit, ream hole in hinge lugs and install second oversize replacement bushings per substeps below:

(1) Position A - install locator block (detail 209), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 209) and install locator block (detail 164). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view A.

(2) Position B - install locator block (detail 211), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 211) and install locator

block (detail 168). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view B.

(3) Position C - install locator blocks (detail 213), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 213), install locator block (detail 172). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view A.

(4) Position D - install locator blocks (detail 215), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 215), install locator block (detail 176). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view B.

(5) Position E - install locator blocks (detail 217), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 217), install locator block (detail 180). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view A.

(6) Position F - install locator blocks (detail 219), ream hinge lugs with a 0.3408 inch reamer. Remove locator block (detail 219), install locator block (detail 184). Ream hinge lugs with a 0.3438 inch reamer. Install replacement second oversize bushings, view C.

g. Remove shroud from fixture.

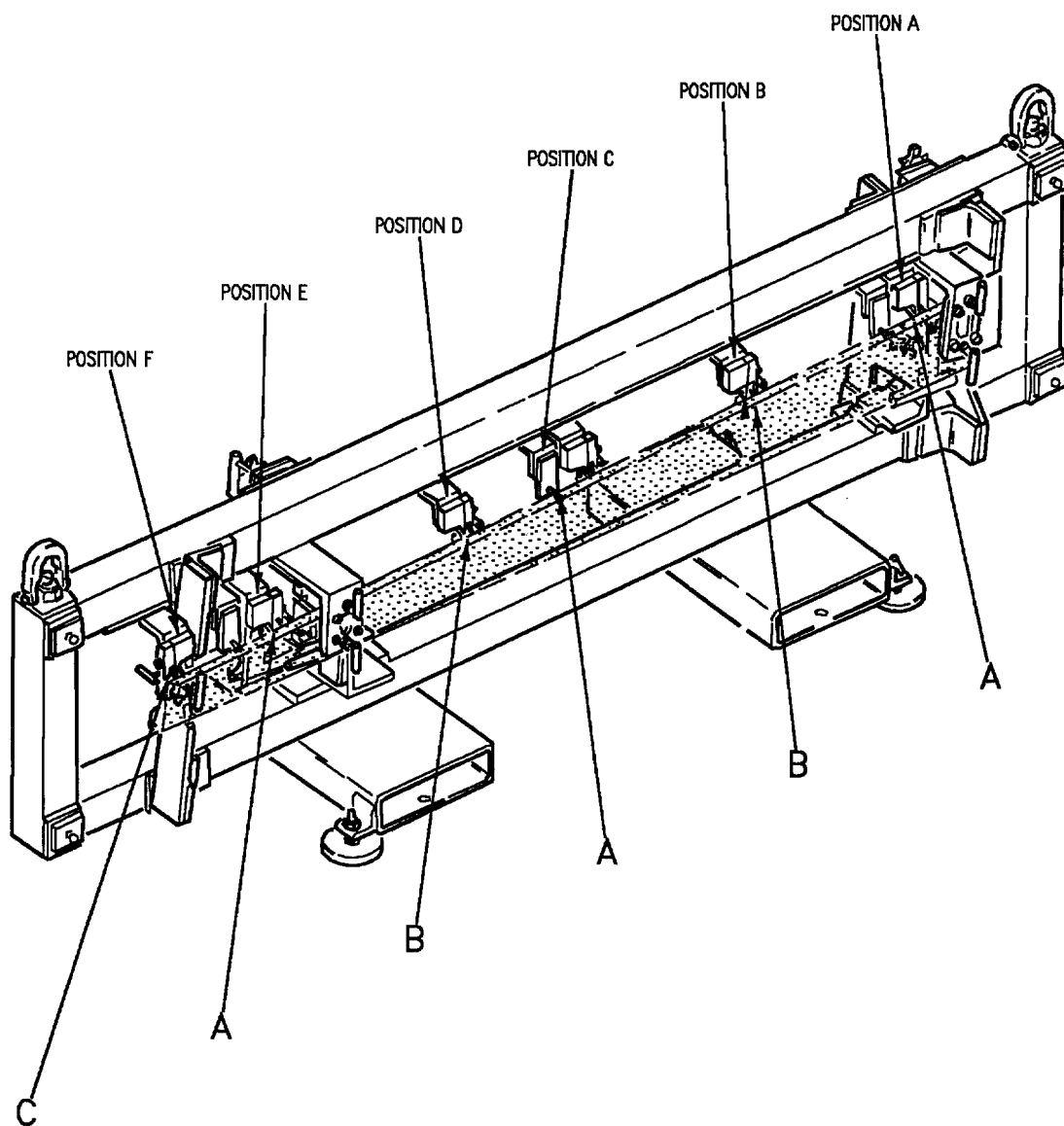
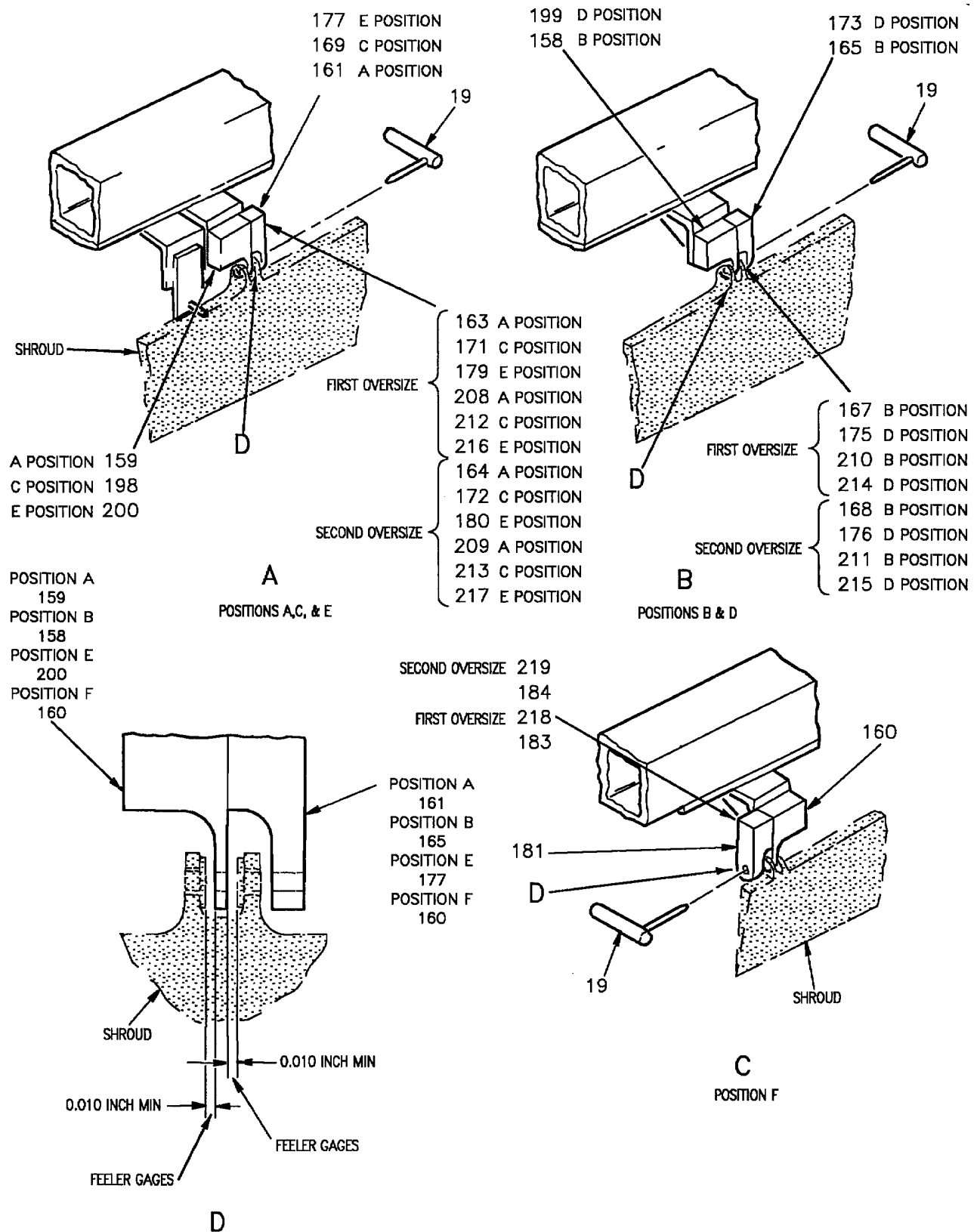


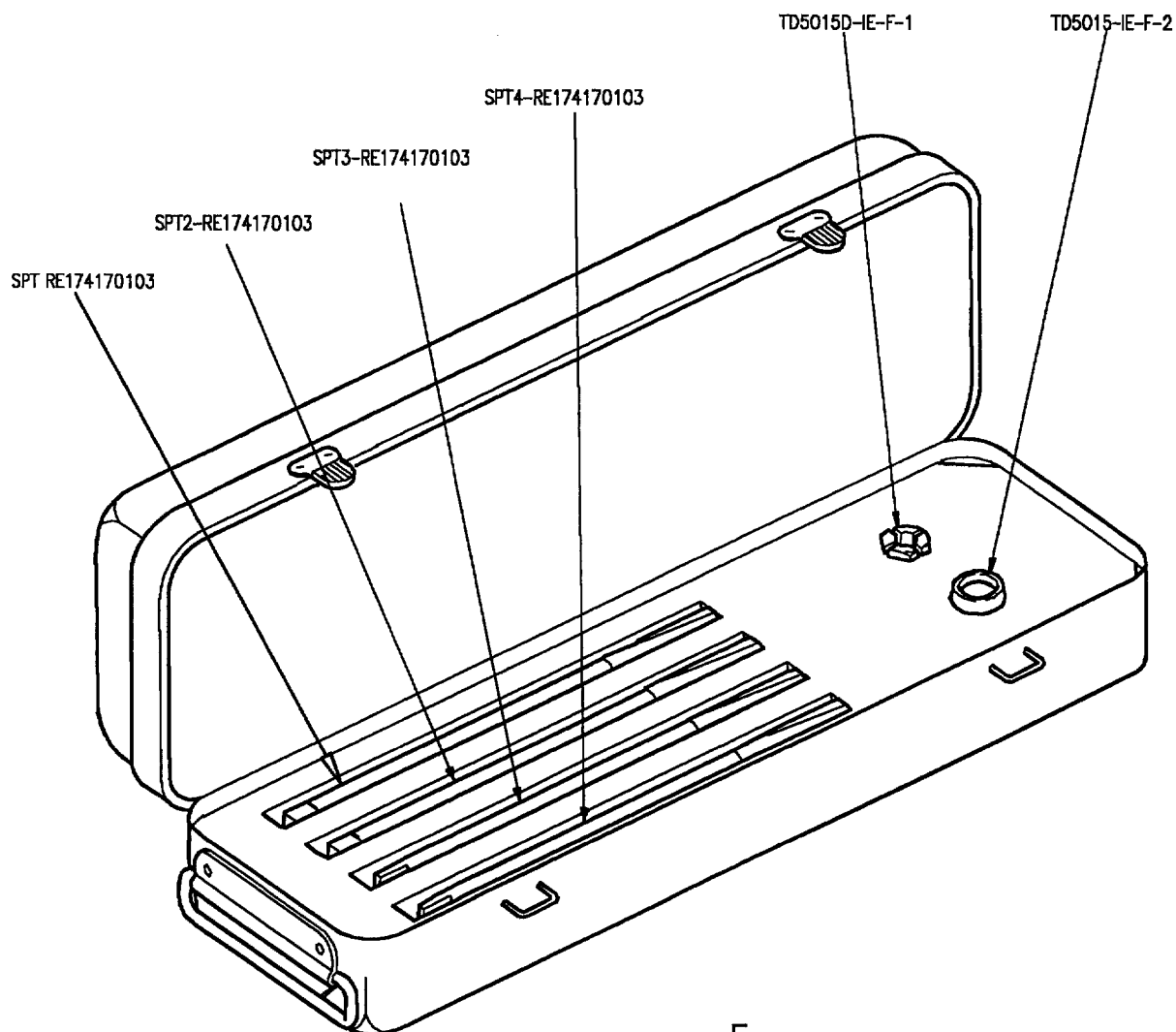
Figure 15. Hinge Bushing Replacement First and Second Oversize (Sheet 1)

09011501



09011502

Figure 15. Hinge Bushing Replacement First and Second Oversize (Sheet 2)



E

RE274170103

PART NUMBER	DIAMETER
SPT RE174170103	0.3281
SPT2-RE174170103	0.3438
SPT3-RE174170103	0.3255
SPT4-RE174170103	0.3408

Figure 15. Hinge Bushing Replacement First and Second Oversize (Sheet 3)

Detail No.	Name	Function
19	L-pin	Supports shroud in maintenance fixture.
158	Locator block	Locates and aligns shroud in maintenance fixture.
159	Locator block	Locates and aligns shroud in maintenance fixture.
160	Locator block	Locates and aligns shroud in maintenance fixture.
161	Locator block	Locates and aligns shroud in maintenance fixture.
163	Locator block	Guides 0.3281 inch reamer into hinge lug.
164	Locator block	Guides 0.3408 inch reamer into hinge lug.
165	Locator block	Locates and aligns shroud in maintenance fixture.
167	Locator block	Guides 0.3281 inch reamer into hinge lug.
168	Locator block	Guides 0.3438 inch reamer into hinge lug.
169	Locator block	Locates and aligns shroud in maintenance fixture.
171	Locator block	Guides 0.3281 inch reamer into hinge lug.
172	Locator block	Guides 0.3438 inch reamer into hinge lug.
173	Locator block	Locates and aligns shroud in maintenance fixture.
175	Locator block	Guides 0.3281 inch reamer into hinge lug.
176	Locator block	Guides 0.3438 inch reamer into hinge lug.
177	Locator block	Locates and aligns shroud in maintenance fixture.
179	Locator block	Guides 0.3281 inch reamer into hinge lug.
180	Locator block	Guides 0.3438 inch reamer into hinge lug.
181	Locator block	Locates and aligns shroud in maintenance fixture.
183	Locator block	Guides 0.3281 inch reamer into hinge lug.
184	Locator block	Guides 0.343 inch reamer into hinge lug.
198	Locator block	Locates and aligns shroud in maintenance fixture.
199	Locator block	Locates and aligns shroud in maintenance fixture.
200	Locator block	Locates and aligns shroud in maintenance fixture.

Figure 15. Hinge Bushing Replacement First and Second Oversize (Sheet 4)

Detail No.	Name	Function
208	Locator block	Guides 0.3255 inch reamer into hinge lug.
209	Locator block	Guides 0.3408 inch reamer into hinge lug.
210	Locator block	Guides 0.3255 inch reamer into hinge lug.
211	Locator block	Guides 0.3408 inch reamer into hinge lug.
212	Locator block	Guides 0.3255 inch reamer into hinge lug.
213	Locator block	Guides 0.3408 inch reamer into hinge lug.
214	Locator block	Guides 0.3255 inch reamer into hinge lug.
215	Locator block	Guides 0.3408 inch reamer into hinge lug.
216	Locator block	Guides 0.3255 inch reamer into hinge lug.
217	Locator block	Guides 0.3408 inch reamer into hinge lug.
218	Locator block	Guides 0.3255 inch reamer into hinge lug.
219	Locator block	Guides 0.3408 inch reamer into hinge lug.

Figure 15. Hinge Bushing Replacement First and Second Oversize (Sheet 5)



## ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

## AILERON

## LEADING EDGE

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Priming Procedures .....	WP011 00
Outer Wing Corrosion Prone Areas .....	WP025 01
Inner and Outer Wing Finish System and Markings .....	WP027 00
Line Maintenance Procedures .....	A1-F18AC-LMM-000
Electrical Bonding, Sealing and Electromagnetic Compatibility (EMC) Protection .....	WP037 00
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Aileron - Inst. of .....	FIG 006 00
Aileron - Shroud, Installation of .....	FIG 007 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Countersink Fillers .....	WP004 12
Bearing Removal and Installation Tool Set Part No. 74D110166 .....	WP004 38
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum and Titanium Sheet, Formed Structure .....	WP033 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Use of Equipment History Record Card .....	WP048 00
System Maintenance with IPB, Integrated Flight Controls .....	A1-F18AC-57-300
Aileron (84MPU525 or 84MPV526 or Aileron Shroud (84MPU527 or 84MPV528) Electronic Flight Control System .....	WP010 00
Aircraft Weapons System Cleaning and Corrosion Control .....	NAVAIR 01-1A-509

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## Record of Applicable Technical Directives

None

1. **DAMAGE EVALUATION.** See figures 1, 2 and 3.

2. Damage is classified as negligible and repairable. The types of materials used are shown on figures 1 and 2. Repair zones are shown on figure 3. Allowable damage limits within repair zones are in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits below and cold worked holes requires a depot engineering disposition.

3. **ALLOWABLE REPAIR WEIGHTS.** See figure 4. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on aileron for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair

weight, and no entries on EHR card restrict future repairs within this zone, proceed with repair and enter required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds need not be recorded on EHR card.

a. For repairs which overlap into more than one repair zone, select the zone that has the most restrictive repair criteria. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone all of the repair weight should be added to that zone.

4. **NEGLIGIBLE DAMAGE.** Negligible damage is damage that may be allowed to exist as is. Preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

5. **REPAIRABLE DAMAGE.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figures 1 and 2.

#### NOTE

The limits in table 2 apply after blending the damage.

##### a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

##### c. Cracks. All cracks must be repaired.

##### d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fastener diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, over structure, only one repair per land.

e. Dents exceeding the limits in table 1 must be repaired.

#### 6. REPAIRS.

7. Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repairs are made using aluminum patches. Repair type definition are in structure repair terms (ABE-F18AC-SRM-200, WP002 00).

8. **PERMANENT REPAIRS.** Determine weight of each repair per tables 3 through 8.

9. **Scratches, Nicks, Gouges, or Corrosion.** Blend scratches, nicks, gouges, or corrosion (A1-

F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair aluminum sheet. Refinish blended areas on moldline skin (A1-F18AC-SRM-500, WP027 00).

##### a. Scratches - make crack or edge repairs.

b. Nicks, gouges, or corrosion - make hole or edge repair.

#### 10. Cracks.

a. In repair zone A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair cracks free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zone A4, repair cracks to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zone A4 install repair one through six. Select repair that can be adapted to damaged part.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 11. Holes.

a. In repair zone A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair holes free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair holes across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zone A4, repair holes to formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zone A4 install repair one through six. Select repair that can be adapted to damaged part.

(3) Refinished repaired area (NAVAIR 01-1A-509).

12. **Edge.** In repair zone A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 13. Dents.

a. In repair zone A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) Install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B4, repair dents free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zone A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zone A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-250, WP027 00).

d. In repair zone A4, repair dents to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zone A4 install repair one through six. Select repair that can be adapted to damaged part.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

**14. REPAIR OF 74A170729, INBOARD AILERON SHROUD TRACK.** See figure 5. No weight added by this repair.

a. Remove aileron shroud (A1-F18AC-570-300, WP010 00).

#### NOTE

Track shall be trimmed while installed in aileron.

b. Trim track as shown, view B.

c. Trim block as shown, view C.

d. Install block and inspect for flushness of trimmed areas. Remove block and trim until flush with track, if required.

e. Clean up area of repair.

f. Reinstall aileron shroud (A1-F18AC-570-300, WP010 00).

**15. UPPER SKIN REPAIR AT OUTBOARD HINGE.** See figure 6. This repair is done at intermediate maintenance level. See view C for repair weight.

#### Support Equipment Required

None

#### Materials Required

Nomenclature	Specification or Part Number
7075-T6 Alclad	QQ-A-250/13
0.080 (Doubler)	
0.020 (Shim)	
0.090 (Spacer)	
Adhesive Compound	EA960F
Blind Fastener (6)	PLT1058-6-( )
Blind Fastener	NAS1399C-5
(As Required)	
Collar (As Required)	HL570-5MC
Pin (As Required)	AIC-L-611V5
Sealing Compound	MIL-S-83430
Sealing Compound	MIL-S-8802




a. Remove maximum of two fasteners from damage area, view A.

#### NOTE

Protect plate while trimming skin by inserting shim between skin and plate.

b. Trim damaged area of upper skin per dimensions, view A.

- c. Trim damaged area of plate per dimensions, view B.
- d. Finish trimmed area to RHR 125.
- e. Do Chemical Treatment to trimmed area, (A1-F18AC-SRM-500, WP008 00).
- f. Fabricate doubler, shim, and spacer. Maintain two diameter +0.03 -0.00 edge distance. For fasteners and locations, view D.
- g. Remove any fasteners required to install doubler, view D. Drill holes for next oversize. Remove filings from area.
- h. Install spacer, shim, and doubler, view C. Fay surface seal between all surfaces (A1-F18AC-SRM-200, WP011 00). For fastener locations, view D. Mate drill two inboard fasteners through doubler and skin. Install fasteners wet with MIL-S-8802 (A1-F18AC-SRM-200, WP011 00).



Adhesive Compound12

- i. Apply adhesive compound to fair doubler to mold line (A1-F18AC-SRM-200, WP011 00).



Sealing Compound6

- j. Apply MIL-S-83430 sealing compound to seal any gaps or cracks in repair (A1-F18AC-SRM-200, WP011 00).

- k. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).
- l. Add shim to aileron shroud outboard drive arm as required to maintain 0.060 gap between shroud and doubler. For shim (A1-F18AC-SRM-410, FIG 007 00).

16. LOWER OUTBOARD SKIN REPAIR AT OUTBOARD HINGE. See figure 7. This is an intermediate level repair.

Support Equipment Required

Part Number or Type Designation	Nomenclature
Aircraft Structure Repair Tool Kit	74D110325-1001
Balance Scale, Trip, 0.10 Gram Graduations	-
Compression Riveter, Squeezer	-
Connector Plug, Electric	MS3101R16-10P
Drill Motor, 45° Angle	-
Drill Motor, 90° Angle	-
Drill Motor, Variable Speed	No. 11 DPV-15DA-450/1250
High Shear Cutter	AT4930-0-00-5/32
High Shear Cutter	AT493C-1-3/16
Infrared Heat Source, 250 Watt	-
Punch	SPT-0.093 Inch
Punch	SPT-0.125 Inch
Punch	SPT-0.187 Inch
Repair Set Temperature/ Vacuum Control	74D110165-1001
Vacuum Cleaner	MIL-V-21987

## Materials Required

Specification or Part Number	Nomenclature
Adhesive	EA9321A/B
Blind Rivet (22)	NAS1399C4A2
Blind Rivet (34)	NAS1399C5A3
Blind Rivet (22)	NAS1399C5A4
Blind Rivet (1)	PLT1058-5-3
Blind Rivet (1)	PLT1058-5-4
Blind Rivet (1)	PLT1058-6-3
Blind Rivet (6)	PLT1058-6-4
Cheesecloth	CCC-C-440, Type 1, Class 1
Cloth, Scrim, Nylon	Pattern 30
Collar (6)	HL570-5MC
Isopropyl Alcohol	TT-I-735, Grade 1
Pin (1)	HL611-5-12
Pin (1)	HL611-5-16
Pin (3)	HL611-5-5
Pin (1)	HL611-5-8
Rivet, Solid	BRFS4AD
Rivet, Solid	MS20470AD5
Rivet, Solid	MS20470T6
Sealing Compound	MIL-S-83430, CLB-1/2
Wire, Safety, Nonelectrical	MS20995NC20

a. Remove aileron (A1-F18AC-570-300, WP010 00).

b. Place aileron on a suitable work bench or holding fixture.



Use care when drilling out rivets not to damage skins.

c. Drill out 75 rivets from XW189.000 to XW208.350 attaching 74A170719 (center skin) to structure, view A.

d. Break seal between center skin and structure.



Use care and slowly roll back skin so that skin does not become creased.

e. Tie skin away from repair area using safety wire, view A.

f. Drill out three rivets attaching 74A170744 (rib) to 74A170739 (tee bracket), detail A.

g. Drill out 12 rivets attaching rib to 74A170721 (upper skin), sheet 1.

h. Remove rib by breaking sealant between rib and tee bracket, then removing rib.

i. Drill out eight rivets attaching 74A170746 (doubler) to structure, view A.

j. Remove doubler.

k. Remove 74A170747 (filler block), view A.

l. Remove six collars from inboard side of 74A170729 (shroud track) using high shear cutter with drill motor.

m. Drive out two pins attaching 74A170743 (rub strip) to 74A170729 (shroud track) and 74A170762 (outboard hinge), view A.

n. Remove rub strip and inspect for damage. If damage is found, replace rub strip.

o. Drive out four pins attaching shroud track to outboard hinge, view A.

p. Remove shroud track and inspect for damage. If damage is found, replace shroud track.

q. Drill out six rivets attaching 74A170719 (outboard skin) to outboard hinge, view A.

r. Install titanium countersink fillers six places (A1-F18AC-SRM-200, WP004 12), view A.

s. Enlarge six holes in countersink fillers and outboard hinge to 0.192 +0.006 -0.000 inch diameter.

t. Vacuum clean repair area of any loose debris.



Isopropyl Alcohol

2



To avoid contamination of alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into alcohol.

u. Clean repair area with clean cheesecloth moistened with isopropyl alcohol.



Sealing Compound



6



Do not vibration drive rivets in outboard hinge. Damage to outboard hinge flange may result.

**NOTE**

Make sure shop head of rivet will clear shroud track when installed.

v. Install protruding head rivets wet with sealing compound six places using compression riveter.

w. Fay surface seal area on shroud track contacting outboard hinge. For fay surface sealing (A1-F18AC-SRM-200, WP011 00).

**NOTE**

First oversize repair fasteners may be used as required to secure shroud track and rub strip to outboard hinge.

x. Install pins and collars wet with sealing compound four places securing shroud track to outboard hinge, view A.

y. Fay surface seal area on rub strip contacting shroud track.

z. Install pins and collars wet with sealing compound two places securing rub strip to shroud track and outboard hinge, view A.

aa. Install filler block:



Adhesive

3

**NOTE**

Mix only the amount of material to be used in 40 minutes.

(1) Prepare adhesive by combining 100 units of part A with 50 units of part B.

(2) Mix thoroughly until a uniform color appears.

(3) Allow adhesive to set five minutes for air bubble removal.

(4) Apply a thin coat of adhesive to areas on filler block contacting shroud track and structure.

(5) Position one layer of scrim cloth on top of adhesive.

(6) Assemble immediately, applying pressure to get complete contact.

(7) Remove adhesive squeezed out with clean cheesecloth moistened with isopropyl alcohol.

(8) Cure adhesive by one of two methods:

(a) Air cure at room temperature, 75° F, for 5 days.



If using heat cure method, do not exceed 200° F or damage to assembly may occur.

(b) Connect infrared heat source to 74D110165-1001 repair set with MS3101R16-10P connector.

(c) Heat cure using 250 watt infrared heat source for 1 hour.

(9) Seal void area between shroud track and upper skin using sealing compound.

ab. Fay surface seal area on doubler contacting structure.

ac. Install blind rivets wet with sealing compound 8 places securing doubler to structure, view A.

ad. Fay surface seal area on rib contacting structure.



ae. Install rivets wet with sealing compound 10 places securing rib to upper skin, sheet 1.

af. Install rivets wet with sealing compound three places securing rib to angle bracket, view A.

ag. Apply primer to internal structure (A1-F18AC-SRM-500, WP011 00).

ah. Remove safety wire securing center skin.

ai. Fay surface seal area on center skin contacting structure.

aj. Install temporary fasteners securing skin in position.

ak. Install blind rivets wet with sealing compound 75 places securing skin to structure.

al. Clean repair area of any sealant squeezed out using a clean cheesecloth moistened with isopropyl alcohol.

am. Apply finish system as required (A1-F18AC-SRM-500, WP027 00).

an. Install aileron (A1-F18AC-570-300, WP010 00).

**18. REPAIR OF DAMAGE, 74A170721, AILERON SKIN.** See figure 8. The repair below is for skin damage only. Fabrication of doubler is intermediate level maintenance. Add repair weight shown in figure to total of previous repairs within affected zone. If new total repair weight exceeds limits in figure 4 a depot engineering disposition is required.

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
7075-T6 Alclad 0.080 (Doubler)	QQ-A-250/13
Blind Rivet (9)	PLT1058-5-2
Blind Rivet (4)	PLT1058-5-3

### Materials Required (Continued)

Nomenclature	Specification or Part Number
Blind Rivet (1)	PLT1058-6-2
Blind Rivet (1)	PLT1058-6-3
Blind Rivet (2)	PLT1058-6-4
Blind Rivet (10)	PLT1058-6-5
Cheesecloth	CCC-C-440, Type 1, Class 1
Countersink Filler (16)	4M1 18D
Methyl Isobutyl Ketone	D1153
Rivet, Solid	MS20470D6-14
Sealing Compound	MIL-S-83430, CLB-1/2

a. Remove aileron (A1-F18AC-570-300, WP010 00).

b. Place aileron on a suitable work bench or holding fixture.

c. Do NDI on skin to locate end of crack (A1-F18AC-SRM-300, WP007 03). Crack must not extend beyond zone 1 or zone 2, see views A and B. Cracks in zone 1 should run approximately parallel to the leading edge of the aileron. Cracks in zone 2 may run in any direction. If damage exceeds the limits, an engineering disposition is required.

d. Stop drill end of crack with 0.375 diameter hole in Zone 1 or 0.250 diameter hole in Zone 2.



Use care when drilling out rivets not to damage skin or substructure.

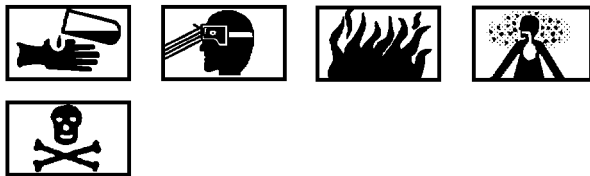
### NOTE

Foreign objects are allowable inside aileron. Does not require removal or trapping.

If the two fastener holes on lower mold line near rib have damage and require oversizing, holes must be cold worked. Cold working of holes is depot level maintenance.

e. Drill out existing fasteners, for fastener locations, see views A and B.

f. Vacuum clean repair area of loose debris.



Methyl Isobutyl Ketone

13

g. Wipe repair area with clean cheesecloth moistened with methyl isobutyl ketone. Dry repair area with clean dry cheesecloth.

h. Fabricate doubler per dimensions, see views F, G, and H.

i. Form doubler to fit around 74A170721 skin (A1-F18AC-SRM-200 WP004 01).

j. Heat treat doubler to T6 (A1-F18AC-SRM-200 WP004 11).

k. Duplicate existing fastener holes from 74A170721 skin to doubler (A1-F18AC-SRM-200 WP004 03).

l. Locate new fastener holes on doubler, see views C and D,

m. Drill pilot holes in doubler.

n. Vacuum clean doubler of loose debris,

o. Install 4M118D countersink fillers in existing fastener holes, see view E (A1-F18AC-SRM-200 WP004 12).

p. Temporarily locate doubler on aileron skin and check alignment of existing fastener holes.

## NOTE

All existing fastener holes increased to next diameter, except for two fasteners on lower mold line near rib.

q. Mate drill fastener holes to final size, see views C and D,

r. Remove doubler and vacuum clean repair area of loose debris.

s. Wipe repair area with clean cheesecloth moistened with methyl isobutyl ketone. Dry doubler and repair area with clean dry cheesecloth.

t. Apply chemical treatment and primer to doubler and to any bare, exposed aluminum surfaces in repair area. (A1-F18AC-SRM-500 WP008 00 and WP011 00).

u. Fay seal mating surfaces of doubler and repair area, For fay sealing (A1-F18AC-SRM-200, WP011 00).

v. Install temporary fasteners securing doubler in position.



Sealing Compound

6

w. Install fasteners wet with sealing compound (A1-F18AC-SRM-200, WP011 00),

x. Clean repair area of any sealant squeezed out using a clean cheesecloth moistened with methyl isobutyl ketone.

y. Apply finish system as required (A1-F18AC-SRM- 500, WP011 00).

z. Install aileron (A1-F18AC-570-300, WP010 00).

Table 1. Negligible Damage Limits




















































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1) 	Skin Zone A4 01 02 03 04 05 06  Zone B4 09 10 11 12 13 14	0.050	0.010	0.0006	100%		
		0.090	0.018	0.0006	100%		
		0.070	0.014	0.0006	100%	0.035	
		0.090	0.0006	0.0006	100%		
		0.070	0.014	0.0006	100%		
		0.050	0.0006	0.0006	100%	0.025	
		0.080	0.0006	0.0006	100%		
		0.090	0.0006	0.0006	100%		
		0.070	0.0006	0.0006	100%	0.035	
		0.063	0.0006	0.0006	100%	0.031	
		0.050	0.0006	0.0006	100%	0.025	
Fig 1 (2) 	Skin Zone A4 07 08	0.071	0.0006	0.0006	100%		
		0.071	0.014	0.0006	100%		
		0.035	0.007	0.0006	100%	0.018	
Fig 1 (3) 	Skin Zone A4 09 10 11 12	0.0110	0.022	0.0006	100%	0.055	
		0.070	0.014	0.0006	100%		
		0.070	0.014	0.0006	100%	0.035	
		0.110	0.022	0.0006	100%		
		0.090	0.018	0.0006	100%		
		0.080	0.016	0.0006	100%		
		0.063	0.013	0.0006	100%	0.031	
		0.040	0.008	0.0006	100%	0.020	
Fig 1 (4) 	Skin Zone A4  Zone B4	0.110	0.0006	0.0006	100%		
		0.090	0.0006	0.0006	100%		
		0.080	0.0006	0.0006	100%		
		0.070	0.0006	0.0006	100%	0.035	
		0.063	0.0006	0.0006	100%	0.031	
Fig 1 (5) 	Skin Zone A4 13 14	0.035	0.0006	0.0006	100%	0.017	
		0.035	0.007	0.0006	100%	0.017	
		0.071	0.014	0.0006	100%		
Fig 2 (1)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A

Table 1. Negligible Damage Limits (Continued)




Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 2 (2)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (3)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (4)	Plate Zone A4	0.050	0.0006	0.0006	100%		N/A
Fig 2 (5)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (6)	Track Zone D3	Forging	0.0006	0.0006	100%		N/A
Fig 2 (7)	Hinge Zone A4	Forging	0.0006	0.0006	100%		N/A
Fig 2 (8)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (9)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (10)	Spar Zone A4  Zone B4	0.063	0.0006	0.0006	100%	0.031	N/A
		0.041	0.0006	0.0006	100%	0.020	N/A
		0.023	0.0006	0.0006	100%	0.011	N/A
		0.063	0.0006	0.0006	100%	0.031	N/A
		0.041	0.0006	0.0006	100%	0.020	N/A
		0.023	0.0006	0.0006	100%	0.011	N/A
Fig 2 (11)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (12)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (13)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (14)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (15)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (16)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A

Table 1. Negligible Damage Limits (Continued)






















Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 2 (17)	Intercostal Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (18)	Rib Zone B4 Zone C4	Forging Forging	0.0006 0.0006	0.0006	100%		N/A
				0.0006	100%		N/A
Fig 2 (19)	Intercostal Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (20)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (21)	Rib Zone A4	0.050	0.010	0.0006	100%		N/A
Fig 2 (22)	Rib Zone A4 Zone C4	0.065 0.100	0.013 0.0006	0.0006	100%		N/A
				0.0006	100%		N/A
Fig 2 (23)	Track Zone D3	Forging	0.0006	0.0006	100%		N/A
Fig 2 (24)	Rib Zone A4	0.050	0.010	0.0006	100%	0.025	N/A
Fig 2 (25)	Plate Zone A4	0.080	0.016	0.0006	100%		N/A
Fig 2 (30)	Plate Zone B3	0.050	0.010	0.0006	100%		
Fig 2 (29)	Plate Zone B3	0.063	0.0006	0.0006	100%		
Fig 2 (28)	Plate Zone B3	0.050	0.010	0.0006	100%		
Fig 2 (35)	Plate Zone B3	0.080	0.0006	0.0006	100%		
Fig 2 (32)	Plate Zone B3	0.125	0.0006	0.0006	100%		
Fig 2 (33)	Shim Zone B3	0.048	0.0006	0.0006	100%		
Fig 2 (34)	Spacer Zone B3	0.063	0.0006	0.0006	100%		

Table 1. Negligible Damage Limits (Continued)









Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 2 (31)	Plate Zone B3	0.063	0.0006	0.0006	100%		
Fig 2 (37)	Doubler Zone B3	0.090	0.0006	0.0006	100%		
Fig 2 (36)	Plate Zone B3	0.071	0.0006	0.0006	100%		
<b>NOTES</b>  See figure 3, detail E.  None allowed.							

Table 2. Repairable Damage Limits After Blending






Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (1) 	Skin Zone A4							
	01	0.050	0.047	0.010	0.010	4%	0.010	4%
	02	0.090	0.050	0.018	0.018	4%	0.018	4%
	03	0.070		0.014	0.014	4%	0.014	4%
	04	0.090	0.050	0.018	0.018	4%	0.018	4%
	05	0.070	0.047	0.014	0.014	4%	0.014	4%
	Zone B4	0.050		0.010	0.010	4%	0.010	4%
		0.080		0.016	0.016	4%	0.016	4%
		0.090	0.0006	0.018	0.018	4%	0.018	4%
		0.070	0.0006	0.014	0.014	4%	0.014	4%
		0.063	0.0006	0.013	0.013	4%	0.013	4%
		0.050	0.0006	0.010	0.010	4%	0.010	4%
Fig 1 (2)	Skin Zone A4							
	07	0.071	0.047	0.014	0.014	4%	0.014	4%
	08	0.071	0.032	0.014	0.014	4%	0.014	4%
		0.035		0.007	0.007	4%	0.007	4%

Table 2. Repairable Damage Limits After Blending (Continued)














Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (3) 	Skin Zone A4 09 10 11 12 0.090 0.080 0.063 0.040	0.110	0.047	0.022	0.022	4%	0.022	4%
		0.070		0.014	0.014	4%	0.014	4%
		0.070		0.014	0.014	4%	0.014	4%
		0.110	0.050	0.022	0.022	4%	0.022	4%
		0.090	0.047	0.018	0.018	4%	0.018	4%
		0.080	0.050	0.016	0.016	4%	0.016	4%
		0.063		0.013	0.013	4%	0.013	4%
		0.040		0.008	0.008	4%	0.008	4%
Fig 1 (4)	Skin Zone A4	0.110	0.057	0.022	0.022	4%	0.022	4%
		0.090	0.050	0.018	0.018	4%	0.018	4%
		0.080	0.050	0.016	0.016	4%	0.016	4%
	Zone B4	0.070	0.0006	0.014	0.014	4%	0.014	4%
		0.063	0.0006	0.013	0.013	4%	0.013	4%
Fig 1 (5) 	Skin Zone A4 13 14	0.035		0.007	0.007	4%	0.007	4%
		0.035		0.007	0.007	4%	0.007	4%
		0.071	0.038	0.014	0.014	4%	0.014	4%
Fig 2 (1) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (2) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (3) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (4)	Plate Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (5) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (6)	Track Zone D3	Forging	0.0006	0.0006	0.0006	100%	0.0006	100%
Fig 2 (7)	Hinge Zone A4	Forging	0.047	0.016	0.016	4%	0.016	4%
Fig 2 (8) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%

Table 2. Repairable Damage Limits After Blending (Continued)












Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 2 (9) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (10)	Spar Zone A4	0.063	0.050	0.012	0.012	4%	0.012	4%
		0.041	0.050	0.008	0.008	4%	0.008	4%
		0.023	0.050	0.004	0.004	4%	0.004	4%
	Zone B4	0.063	0.0006	0.0006	0.0006	100%	0.0006	100%
		0.041	0.0006	0.0006	0.0006	100%	0.0006	100%
		0.023	0.0006	0.0006	0.0006	100%	0.0006	100%
Fig 2 (11) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (12) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (13) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (14) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (15) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (16) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (17) 	Intercostal Zone A4	0.050	0.047	0.010	0.010	4%	0.010	4%
Fig 2 (18)	Rib Zone B4	Forging	0.0006	0.020	0.020	4%	0.020	4%
	Zone C4	Forging	0.0006	0.020	0.020	4%	0.020	4%
Fig 2 (19) 	Intercostal Zone A4	0.050	0.047	0.010	0.010	4%	0.010	4%
Fig 2 (20) 	Rib Zone A4	0.050	0.038	0.010	0.010	4%	0.010	4%
Fig 2 (21) 	Rib Zone A4	0.050	0.047	0.010	0.010	4%	0.010	4%
Fig 2 (22)	Rib Zone A4	0.065	0.050	0.013	0.013	4%	0.013	4%
	Zone C4	0.100	0.0006	0.0006	0.0006	100%	0.0006	100%





Table 3. Repair Weights in Pounds by Zone

Type of Repair	<div> <div>1</div> Zone </div>			
	A3	B3	D3	E3
Type two patch free of land	0.06	0.08	-	0.12
Bonded patch	<div>2</div>	<div>2</div>	<div>2</div>	<div>2</div>
Damage to bay requiring repair across land	0.019	-	-	0.28
Damage to bay requiring repair across land and edge of part	0.19	-	-	0.28
Damage to land or damage to land and bay	0.19	-	-	0.28
Corner damage to land	0.06	-	-	0.26
Corner damage to land and bay	0.14	-	-	-
Edge damage	0.15	0.15	0.18	0.18
Edge damage to lands, and lands and bays	0.15	0.15	0.18	0.18
Formed Structure	<div>3</div>	<div>3</div>	<div>3</div>	<div>3</div>
<b>NOTES</b> <div>1</div> See figure 4 for zone locations. <div>2</div> See table 4. <div>3</div> See tables 5 through 7.				

Table 4. Aluminum Patch Weights in Pounds, Including 2 Layers of FM300 Film Adhesive

Max Damage Size, Dia	Repair Patch Thickness (LBS)							
	0.020	0.025	0.032	0.040	0.050	0.063	0.071	0.080
0.25	-	-	-	0.05	0.06	0.07	0.07	0.08

Table 4. Aluminum Patch Weights in Pounds, Including 2 Layers of FM300 Film Adhesive (Continued)

Max Damage Size, Dia	Repair Patch Thickness (LBS)							
	0.020	0.025	0.032	0.040	0.050	0.063	0.071	0.080
0.50	-	-	0.05	0.06	0.07	0.08	0.09	0.09
0.75	-	0.05	0.06	0.06	0.07	0.09	0.10	0.11
1.00	0.05	0.05	0.06	0.07	0.08	0.10	0.11	0.12
1.50	0.06	0.07	0.08	0.09	0.11	0.13	0.14	0.15
2.00	0.07	0.08	0.10	0.11	0.13	0.16	0.17	0.19
2.50	0.09	0.10	0.12	0.13	0.16	0.19	0.21	0.23
3.00	0.10	0.12	0.14	0.16	0.19	0.22	0.25	0.27
3.50	0.12	0.14	0.16	0.19	0.22	0.26	0.29	0.32
4.00	0.14	0.16	0.18	0.22	0.25	0.30	0.33	0.37
4.50	0.16	0.18	0.21	0.25	0.29	0.35	0.38	0.42
5.00	0.18	0.20	0.24	0.28	0.33	0.40	0.44	0.48
5.50	0.20	0.23	0.27	0.32	0.37	0.45	0.49	0.54
6.00	0.23	0.26	0.30	0.35	0.42	0.50	0.55	0.61

Table 5. Formed Structure Repair Weights in Pounds - Repair One 1

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
Patch Thickness = 0.050						
0 - 0.50	0.12	0.12	0.12	0.12	0.13	0.14
0.51 - 0.75	0.12	0.13	0.13	0.13	0.13	0.14
0.76 - 1.00	0.13	0.13	0.14	0.14	0.14	0.15
1.01 - 1.25	0.14	0.14	0.14	0.14	0.14	0.16
1.26 - 1.50	0.15	0.15	0.15	0.15	0.15	0.17
1.51 - 1.75	0.15	0.15	0.15	0.15	0.16	0.17

Table 5. Formed Structure Repair Weights in Pounds - Repair One   
(Continued)

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
1.76 - 2.00	0.16	0.16	0.16	0.16	0.16	0.18
2.01 - 3.00	0.18	0.19	0.19	0.19	0.20	0.21
3.01 - 4.00	0.20	0.21	0.21	0.21	0.23	0.23
Patch Thickness = 0.080						
0 - 0.50	0.31	0.31	0.32	0.32	0.32	0.35
0.51 - 0.75	0.32	0.32	0.33	0.33	0.33	0.35
0.76 - 1.00	0.33	0.33	0.33	0.33	0.34	0.36
1.01 - 1.25	0.35	0.35	0.36	0.36	0.36	0.39
1.26 - 1.50	0.36	0.36	0.36	0.37	0.37	0.39
1.51 - 1.75	0.38	0.38	0.39	0.39	0.39	0.42
1.76 - 2.00	0.39	0.39	0.39	0.40	0.40	0.43
2.01 - 3.00	0.45	0.45	0.45	0.46	0.46	0.49
3.01 - 4.00	0.49	0.49	0.50	0.50	0.51	0.54
Patch Thickness = 0.100						
0 - 0.50	0.35	0.35	0.35	0.35	0.36	0.39
0.51 - 0.75	0.35	0.36	0.36	0.36	0.37	0.40
0.76 - 1.00	0.36	0.36	0.37	0.37	0.38	0.41
1.01 - 1.25	0.39	0.39	0.39	0.40	0.40	0.43
1.26 - 1.50	0.40	0.40	0.40	0.41	0.41	0.44
1.51 - 1.75	0.42	0.42	0.43	0.43	0.44	0.47
1.76 - 2.00	0.43	0.43	0.44	0.44	0.45	0.48
2.01 - 3.00	0.50	0.50	0.51	0.51	0.52	0.55
3.01 - 4.00	0.55	0.55	0.56	0.56	0.57	0.61

Table 5. Formed Structure Repair Weights in Pounds - Repair One   
(Continued)


Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
NOTE						
 Repair One defined per (A1-F18AC-SRM-250, WP033 00).						

Table 6. Formed Structure Repair Weights in Pounds - Repairs Two and Three



Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
Patch Thickness = 0.050						
0 - 0.50	-	-	-	-	0.05	0.06
0.51 - 0.75	-	-	0.05	0.05	0.05	0.06
0.76 - 1.00	0.05	0.05	0.05	0.05	0.05	0.06
1.01 - 1.25	0.05	0.05	0.05	0.05	0.05	0.07
1.26 - 1.50	0.05	0.05	0.06	0.06	0.06	0.07
1.51 - 1.75	0.06	0.06	0.06	0.06	0.06	0.07
1.76 - 2.00	0.06	0.06	0.06	0.06	0.07	0.08
2.01 - 3.00	0.07	0.07	0.07	0.08	0.08	0.09
3.01 - 4.00	0.08	0.08	0.09	0.09	0.09	0.11
Patch Thickness = 0.080						
0 - 0.50	0.11	0.11	0.11	0.11	0.11	0.13
0.51 - 0.75	0.11	0.11	0.11	0.11	0.12	0.13
0.76 - 1.00	0.11	0.11	0.12	0.12	0.12	0.14
1.01 - 1.25	0.12	0.12	0.13	0.13	0.13	0.15
1.26 - 1.50	0.13	0.13	0.13	0.13	0.14	0.16
1.51 - 1.75	0.14	0.14	0.10	0.14	0.15	0.17
1.76 - 2.00	0.14	0.14	0.14	0.15	0.15	0.17

Table 6. Formed Structure Repair Weights in Pounds - Repairs Two and Three

2 (Continued)

Damage Length	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
2.01 - 3.00	0.16	0.17	0.17	0.17	0.18	0.20
3.01 - 4.00	0.18	0.19	0.19	0.19	0.20	0.23
Patch Thickness = 0.100						
0 - 0.50	0.12	0.12	0.12	0.12	0.13	0.15
0.51 - 0.75	0.12	0.12	0.13	0.13	0.13	0.15
0.76 - 1.00	0.12	0.13	0.13	0.13	0.14	0.16
1.01 - 1.25	0.14	0.14	0.14	0.15	0.15	0.17
1.26 - 1.50	0.14	0.14	0.15	0.15	0.15	0.18
1.51 - 1.75	0.15	0.15	0.16	0.16	0.16	0.19
1.76 - 2.00	0.15	0.16	0.16	0.16	0.17	0.20
2.01 - 3.00	0.18	0.19	0.19	0.19	0.20	0.23
3.01 - 4.00	0.21	0.21	0.21	0.22	0.22	0.26

## NOTE

1. A dash (-) indicates a weight less than 0.05 pounds.

2 Repairs Two and Three defined per (A1-F18AC-SRM-250, WP033 00).

Table 7. Formed Structure Repair Weights in Pounds - Repair Four 2

Patch Thickness	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
0 - 0.050	-	-	-	-	-	-
0.051 - 0.080	-	-	-	-	-	0.05
0.081 - 0.100	-	-	-	-	-	0.06

## NOTE

1. A dash (-) indicates a weight less than 0.05 pounds.

2 Repair Four defined per (A1-F18AC-SRM-250, WP033 00).

Table 8. Formed Structure Repair Weights in Pounds - Repairs Five and Six 2

Patch Thickness	Flange Width					
	0.58	0.61	0.68	0.73	0.81	1.25
0 - 0.050	-	0.05	0.05	0.05	0.05	0.07
0.051 - 0.080	0.10	0.10	0.11	0.11	0.12	0.15
0.081 - 0.100	0.11	0.12	0.12	0.13	0.14	0.18

## NOTE

1. A dash (-) indicates a weight less than 0.05 pounds.

2 Repairs Five and Six defined per (A1-F18AC-SRM-250, WP033 00).

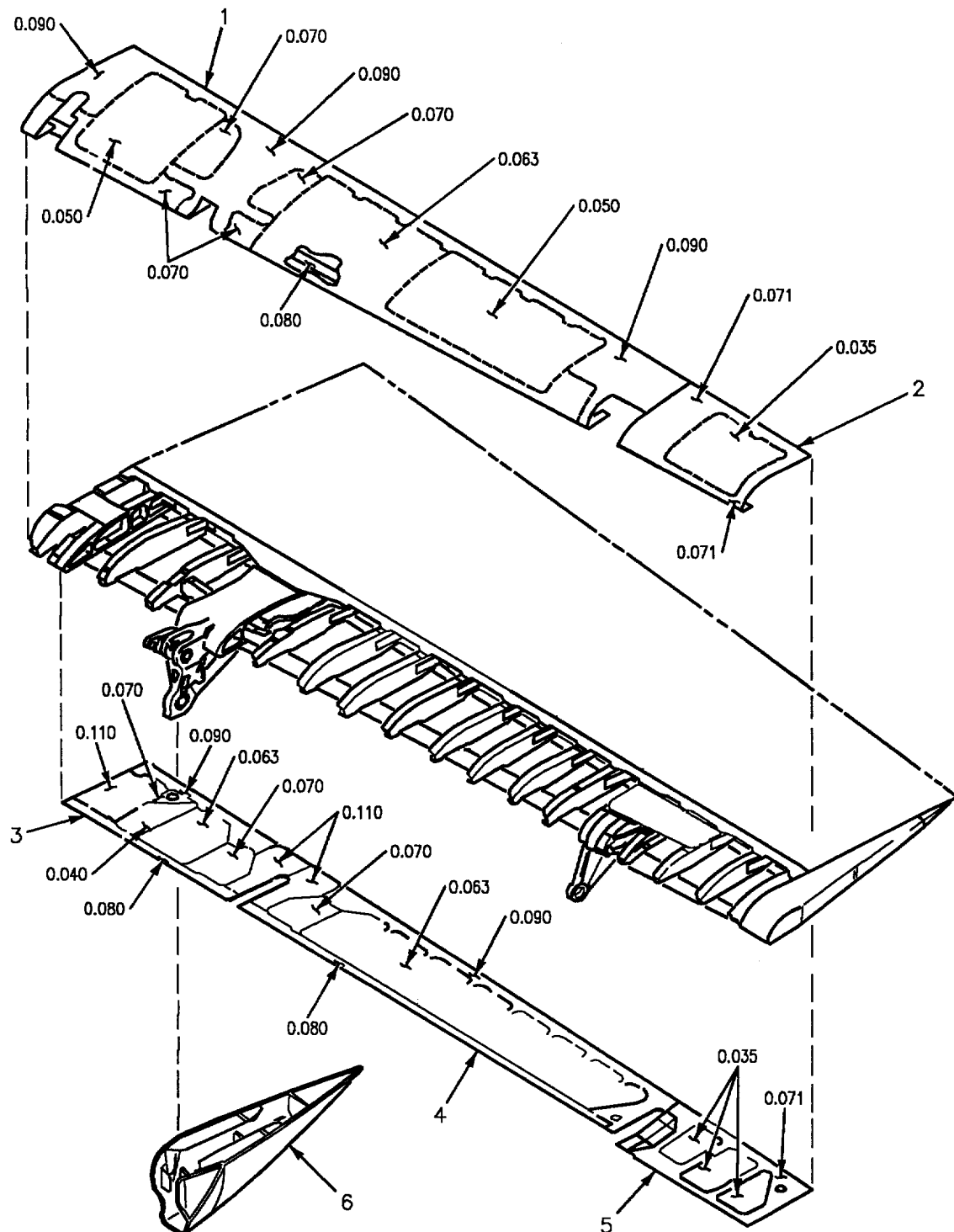


Figure 1. Skins Material Index (Sheet 1)



Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	<div>2</div> <div>3</div>	Skin 74A170721-2001, -2000 74A170721-2005, -2006	<div>1</div> 0.090 Sheet	7075-T6 Alclad
2		Skin 74A170721-2003, -2004	<div>1</div> 0.071 Sheet	7075-T6 Alclad
3		Skin 74A170719-2001, -2002	<div>1</div> 0.125 Sheet	7075-T6 Alclad
4	<div>2</div> <div>3</div>	Skin 74A170719-2003, -2004 74A170719-2009, -2010	<div>1</div> 0.125 Sheet	7075-T6 Alclad
5	<div>4</div> <div>5</div>	Skin 74A170719-2005, -2006 74A170719-2007, -2008	<div>1</div> 0.071 Sheet	7075-T6 Alclad
6		Fairing 74A170760-2003, -2004	Molded	Thermoplastic Polyester
<p style="text-align: center;"><b>LEGEND</b></p> <div>1</div> See detail for chem mill. <div>2</div> 161353 THRU 161944. <div>3</div> 161945 AND UP. <div>4</div> 161353 THRU 161715. <div>5</div> 161716 AND UP.				

Figure 1. Skin Material Index (Sheet 2)

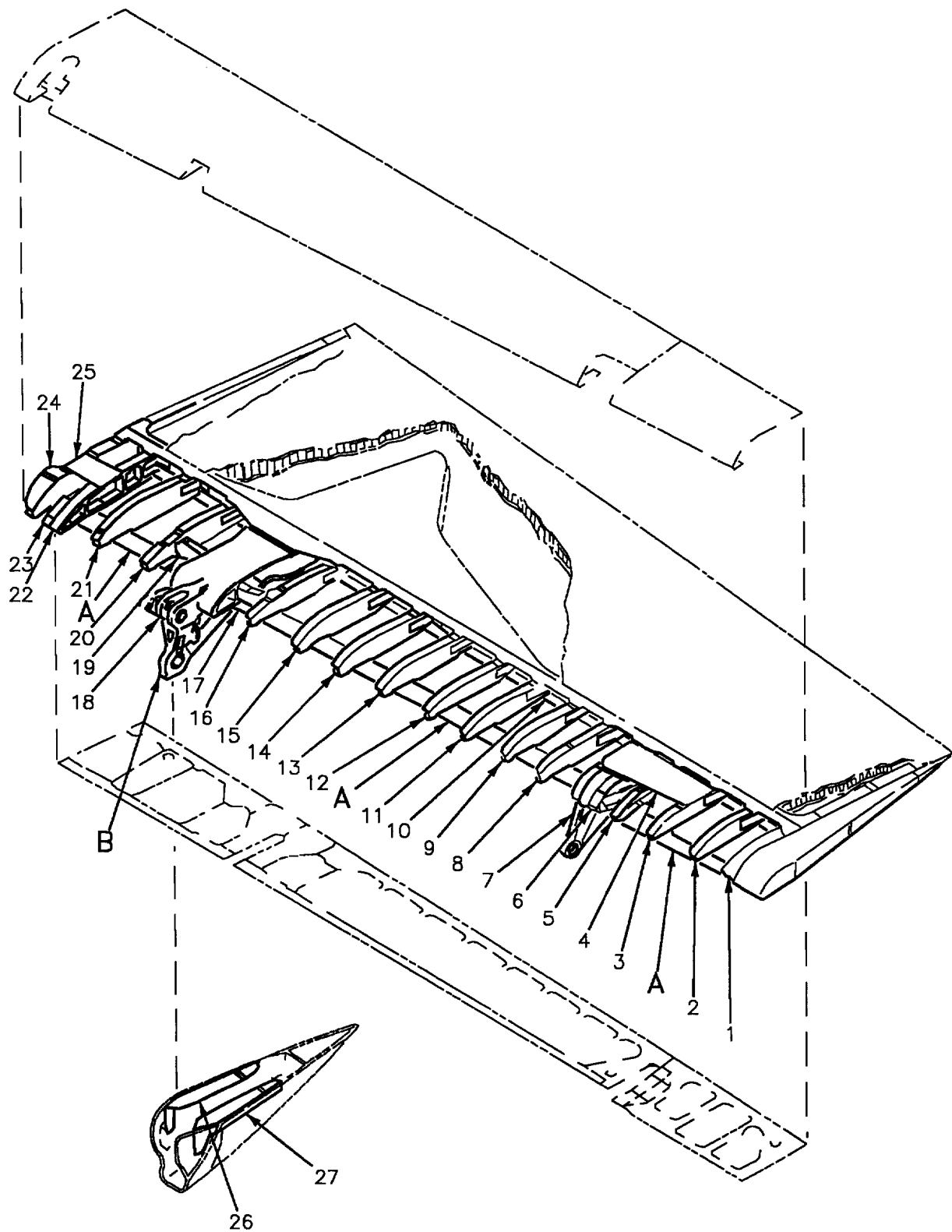


Figure 2. Structure Material Index (Sheet 1)

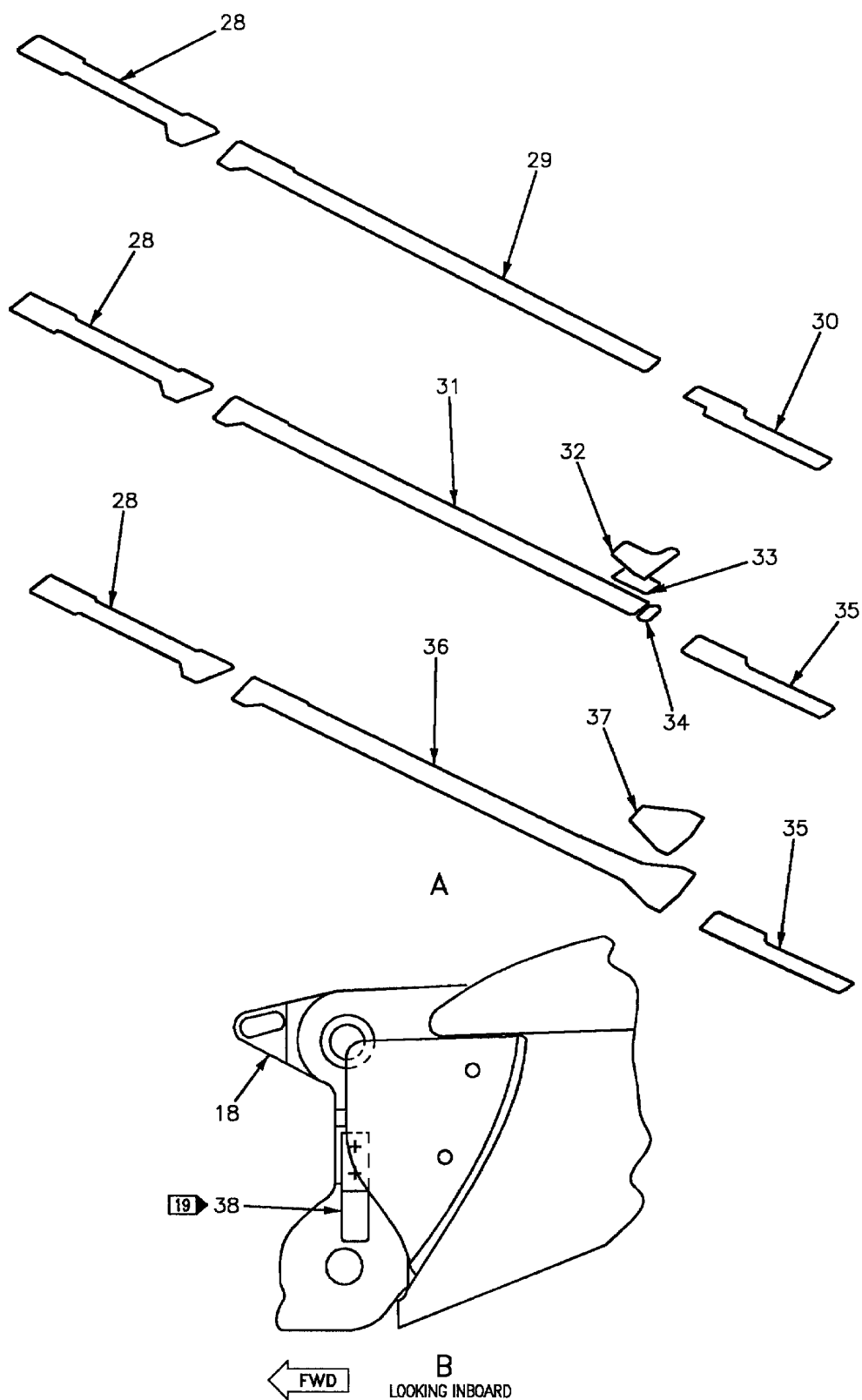


Figure 2. Structure Material Index (Sheet 2)












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2		Rib 74A170745 2007, -2008	0.050 Sheet	7075-T6 Alclad
3		Rib 74A170745-2001, -2002	0.050 Sheet	7075-T6 Alclad
4		Plate 74A170722-2001, -2002	0.050 Sheet	7075-T6 Alclad
5		Rib 74A170744-2007, -2008 74A170744-2009, -2010	0.050 Sheet	7075-T6 Alclad
6		Track 74A170729-2001, -2002	Machining	6A1-4V Ti Anl
7		Hinge 74A170736-2001 74A170736-2002 74A170762-2003 74A170762-2004 74A170762-2007 74A170762-2008	Machining	7050-T73652 Al Aly
8		Rib 74A170744-2005, -2006 74A170744-2011, -2012	0.050 Sheet	7075-T6 Alclad
9		Rib 74A170744-2003, -2004	0.050 Sheet	7075-T6 Alclad
10		Spar 74A170725-2001, -2002	0.063 Sheet	7075-T6 Alclad
11		Rib 74A170744-2001, -2002	0.050 Sheet	7075-T6 Alclad
12		Rib 74A170634-2005, -2006	0.050 Sheet	7075-T6 Alclad
13		Rib 74A170611-2005, -2006	0.050 Sheet	7075-T6 Alclad
14		Rib 74A170619-2003, -2004	0.050 Sheet	7075-T6 Alclad
15		Rib 74A170618-2003, -2004	0.050 Sheet	7075-T6 Alclad

Figure 2. Structural Material Index (Sheet 3)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
16		Rib 74A170617-2005, -2006	0.050 Sheet	7075-T6 Alclad
17		Intercostal 74A170627-2003, -2004	0.050 Sheet	7075-T6 Alclad
18	<div>4</div> <div>12</div> <div>11</div> <div>13</div>	Rib 74A170604-2007 74A170604-2008 74A170604-2009 74A170604-2010	Machining	7050-T73652 Al Aly
19		Intercostals 74A170627-2001, -2002	0.050 Sheet	7075-T6 Alclad
20		Rib 74A170616-2005, -2006	0.050 Sheet	7075-T6 Alclad
21		Rib 74A170615-2005, -2006	0.050 Sheet	7075-T6 Alclad
22		Rib 74A170631-2003, -2004	1.00 Plate	7075-T7351 Al Aly
23		Track 74A170729-2003, -2004	Machining	6Al-4V Ti Anl
24		Rib 74A170630-2005, -2006	0.050 Sheet	7075-T6 Alclad
25		Plate 74A170638-2005, -2006	0.080 Sheet	7075-T6 Alclad
26		Bracket 74A170646-2009, -2010	0.040 Sheet	7075-T6 Alclad
27		Bracket 74A170646-2011, -2012	0.040 Sheet	7075-T6 Alclad
28		Plate 74A170746-2005	0.050 Sheet	7075-T6 Alclad
29	<div>3</div> <div>14</div>	Plate 74A170746-2003 74A170746-2004	0.063 Sheet	7075-T6 Alclad
30	<div>1</div>	Plate 74A170746-2001, -2002	0.050 Sheet	7075-T6 Alclad
31	<div>10</div> <div>15</div>	Plate 74A170746-2009 74A170746-2010	0.063 Sheet	7075-T6 Alclad

Figure 2. Structural Material Index (Sheet 4)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
32	 	Plate 74A170746-2011 74A170746-2012	0.125 Sheet	7075-T6 Alclad
33		Shim 74A170746-2015	0.048 Sheet	5025-H39 Al Aly
34		Spacer 74A170746-2013	0.063 Sheet	7075-T6 Alclad
35		Plate 74A170746-2007, -2008	0.080 Sheet	7075-T6 Alclad
36		Plate 74A170746-2017, -2018	0.071 Sheet	7075-T6 Alclad
37		Doubler 74A170746-2019, -2020	IMA160D05 Extrusion	7075-T7311 Alclad
38		Flat Spring  74A170649-2001	0.012 Sheet	17-7PH Cres

## LEGEND





















-  161353 THRU 161715.
-  161716 AND UP.
-  161353 THRU 161526.
-  161353 THRU 161926.
-  161353 THRU 161944.
-  161945 AND UP.
-  161353 THRU 161940, 161942.
-  161941, 161944 THRU 161950
-  161942, 161951 AND UP.
-  161527 THRU 161944.
-  161927 AND UP.
-  161353 THRU 161929.
-  161930 AND UP.
-  161353 THRU 161525.
-  161526 THRU 161944.
-  161353 THRU 161931.
-  161933 THRU 161940.
-  161941 AND UP.
-  Typical for inboard and outboard side of rib
-  Inspect for corrosion (A1-F18AC-SRM-500, WP025 01): Prepare mating surfaces per Electrical Bonding, Class S (A1-F18AC-LMM-020, WP037 00). Fay seal mating surfaces (A1-F18AC-SRM-200, WP011 00), to prevent moisture trap.

Figure 2. Structural Material Index (Sheet 5)



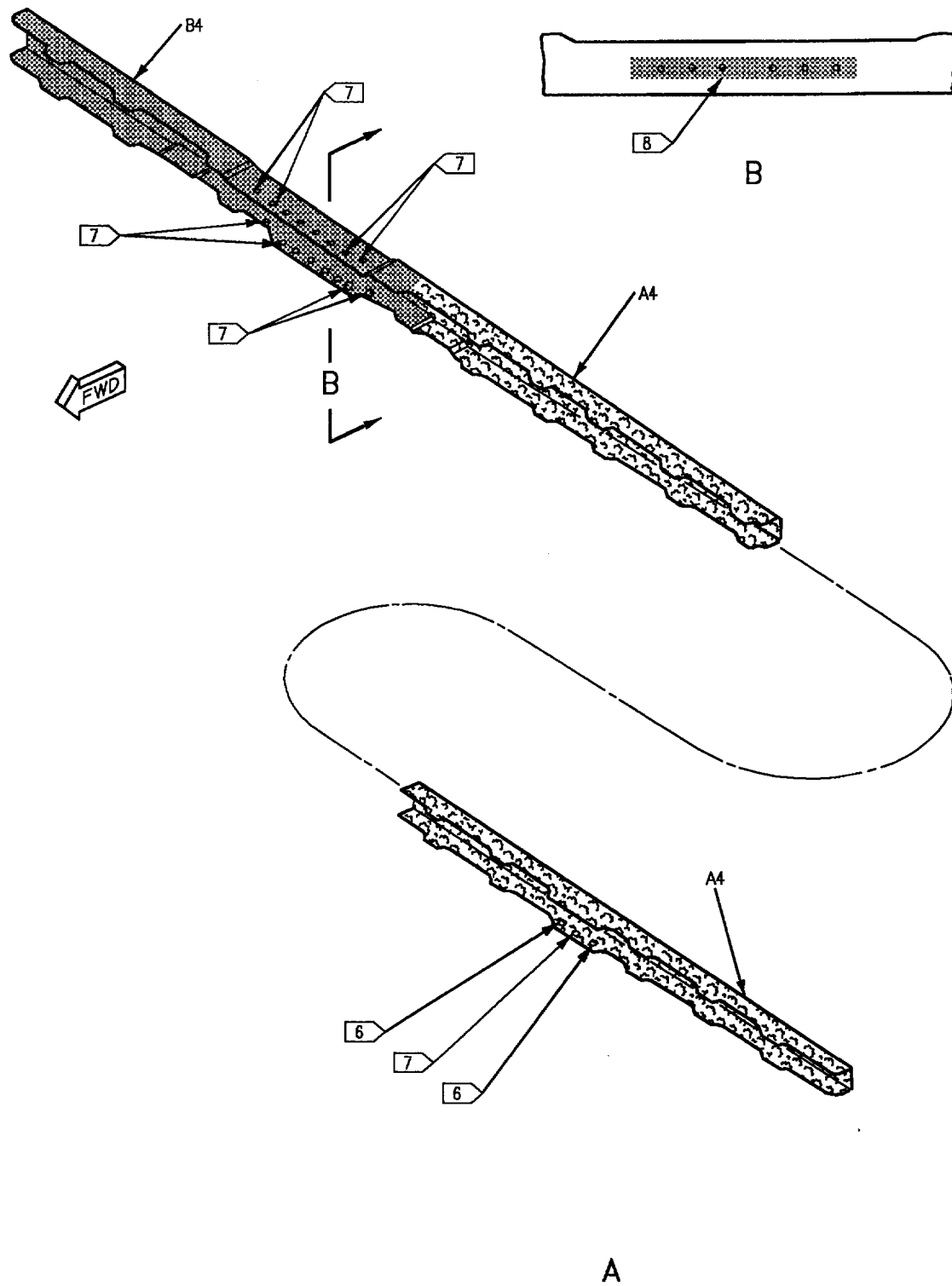


Figure 3. Repair Zones (Sheet 2)



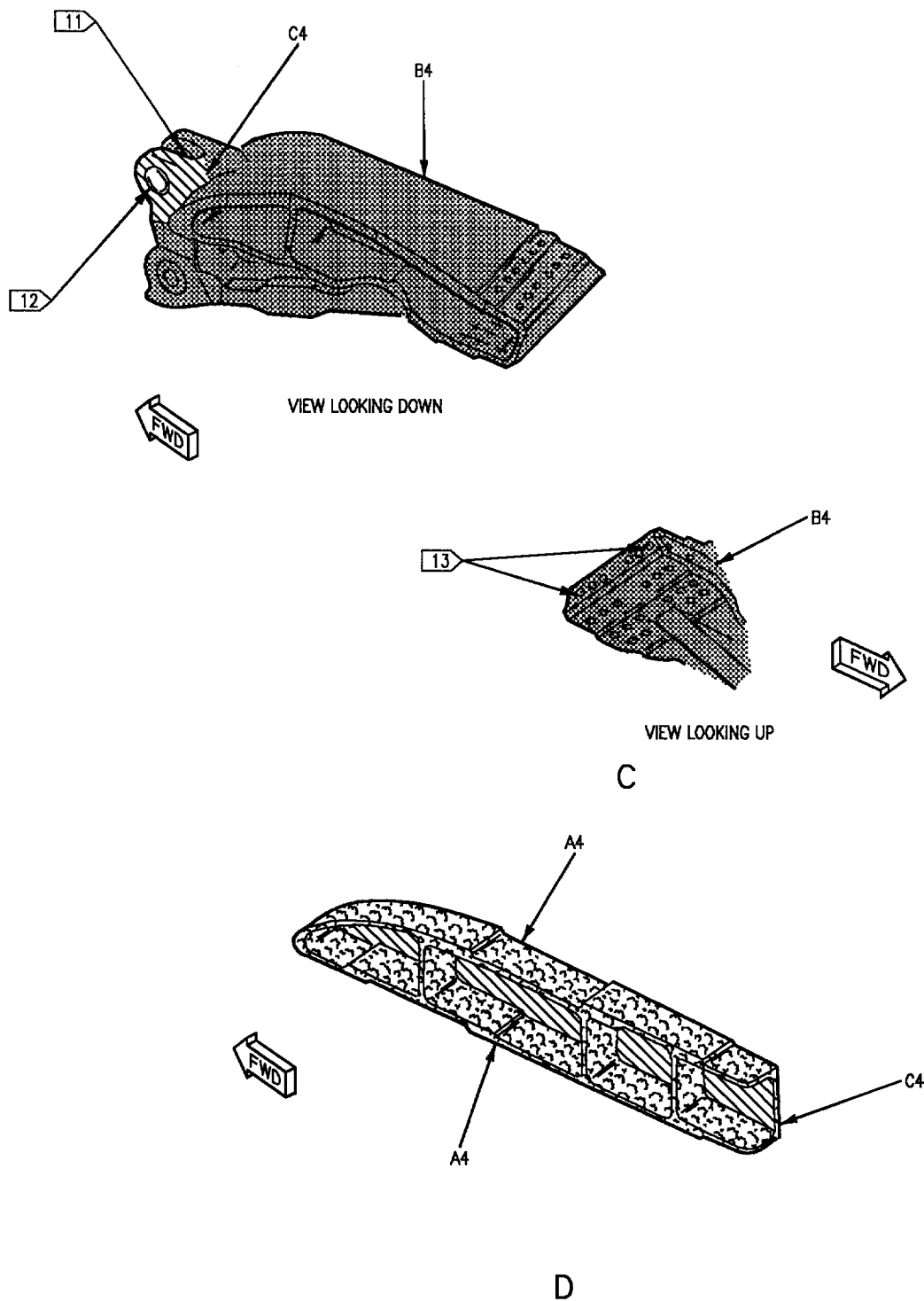


Figure 3. Repair Zones (Sheet 3)

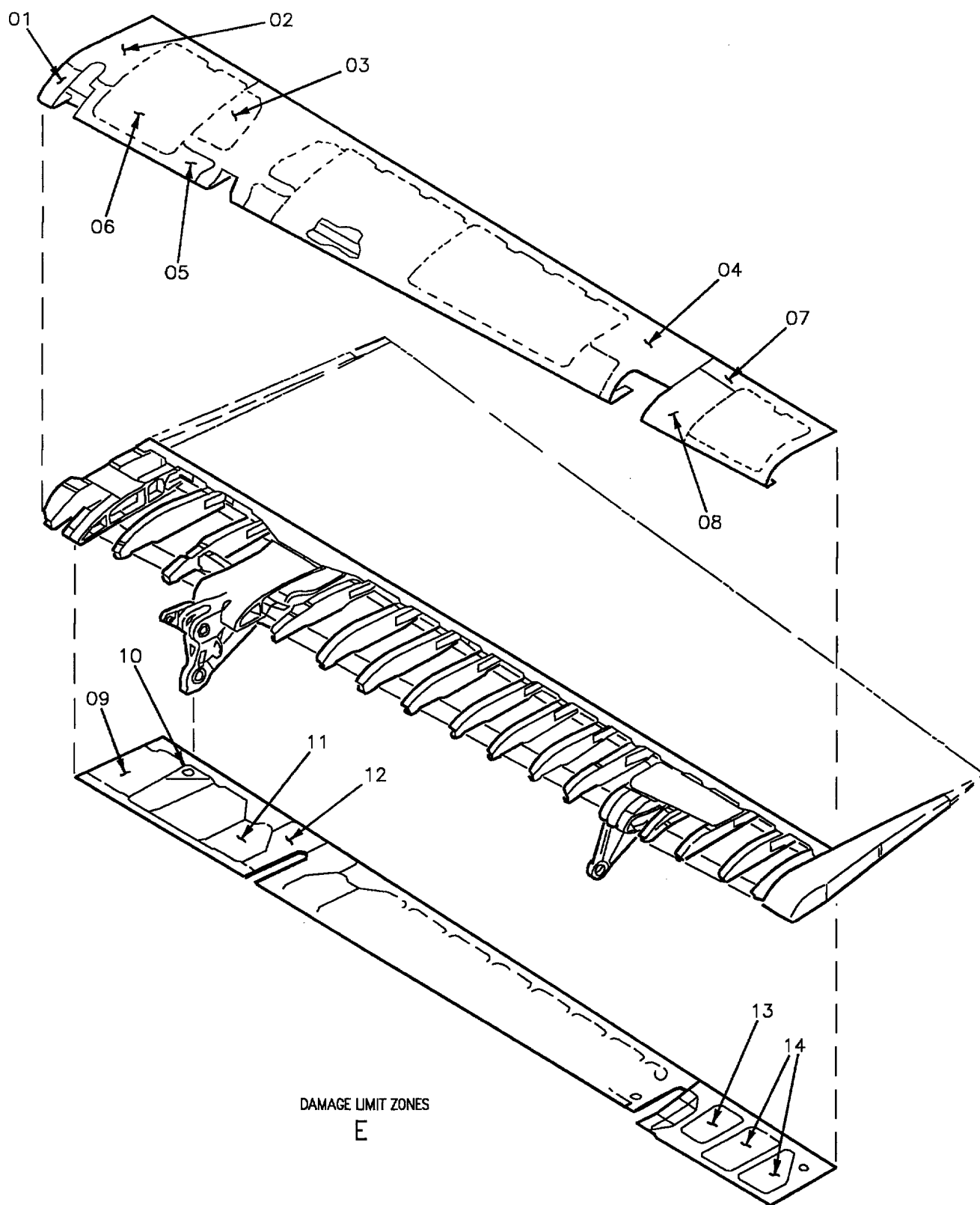


Figure 3. Repair Zones (Sheet 4)

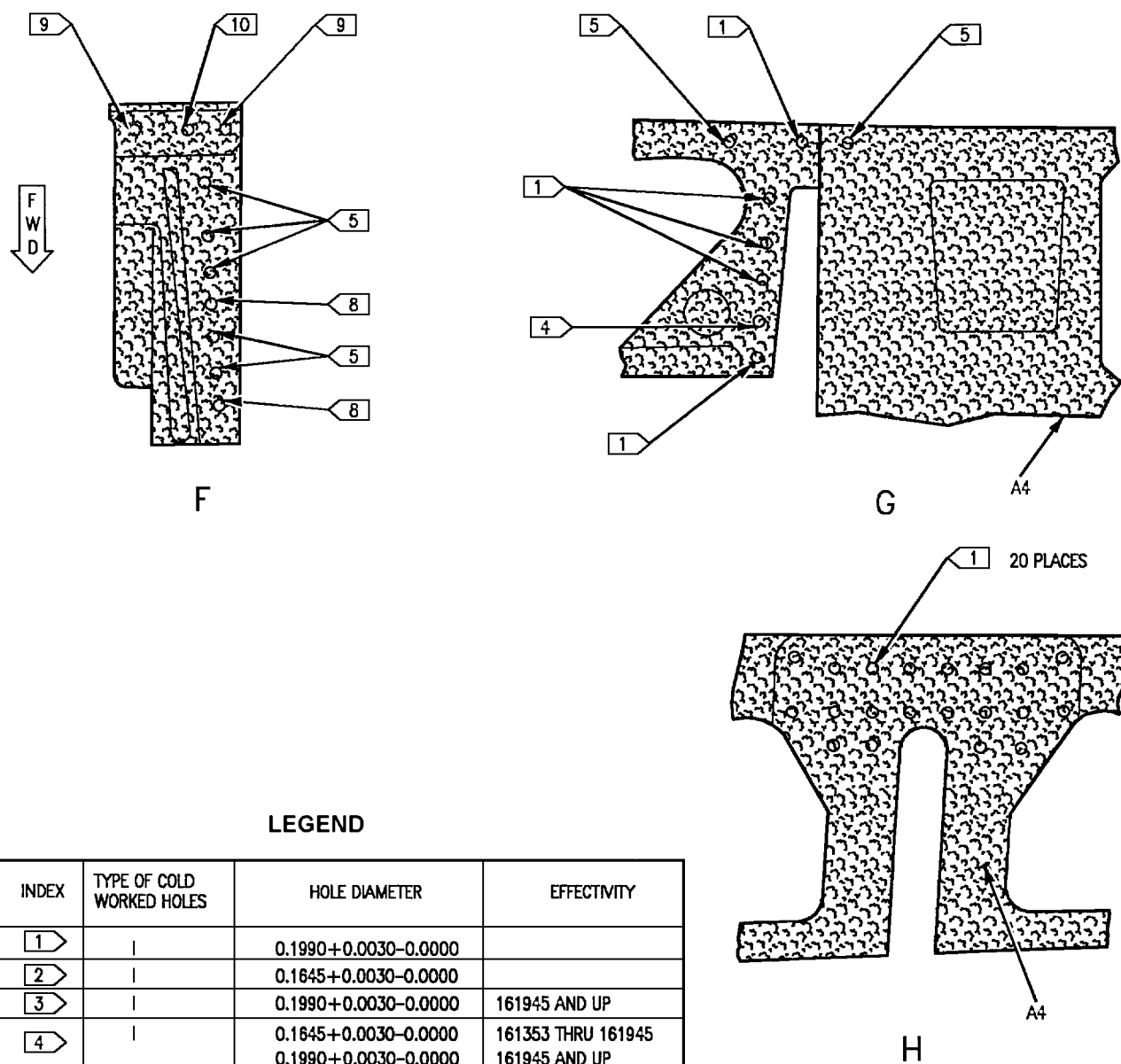


Figure 3. Repair Zones (Sheet 5)

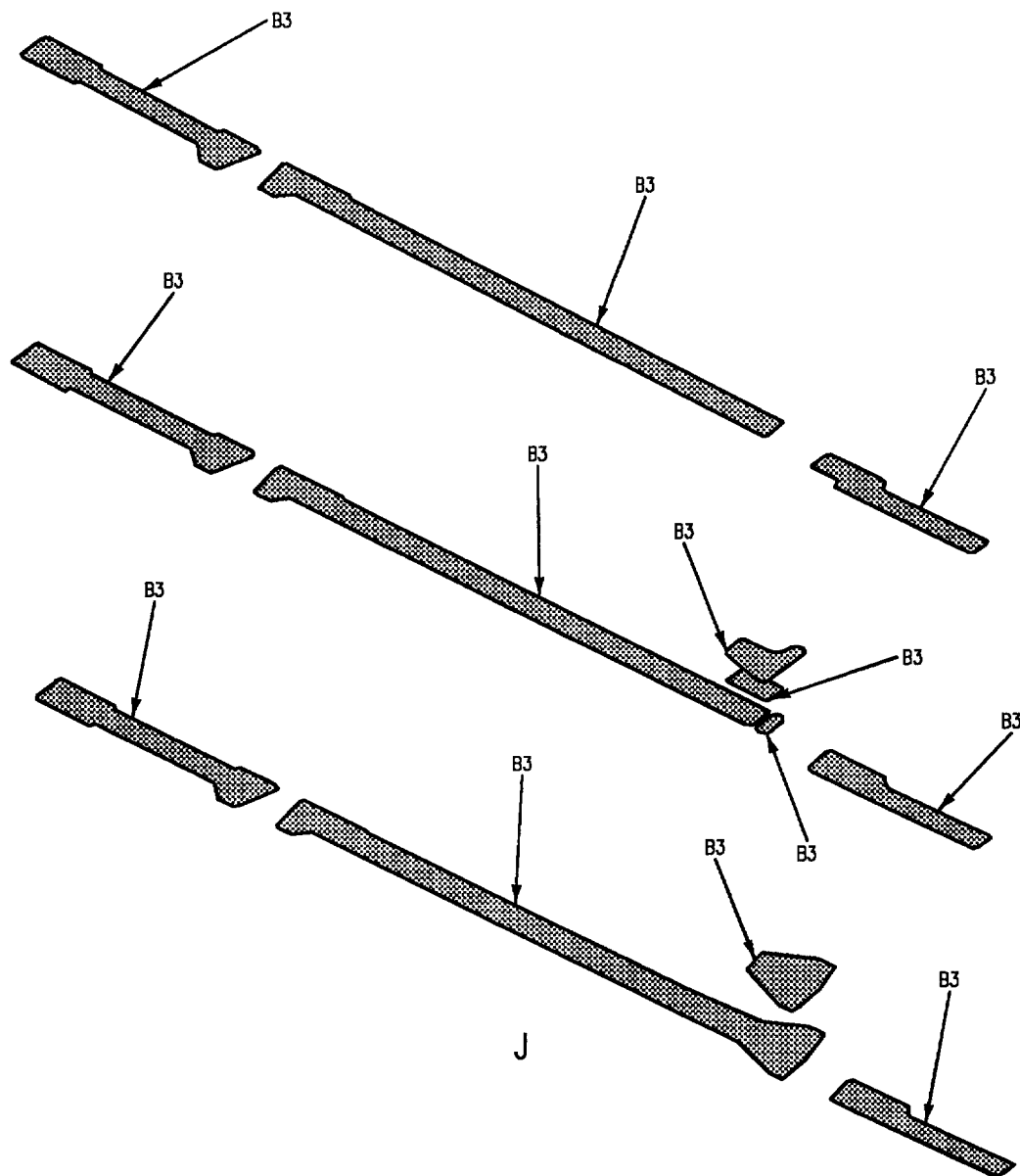
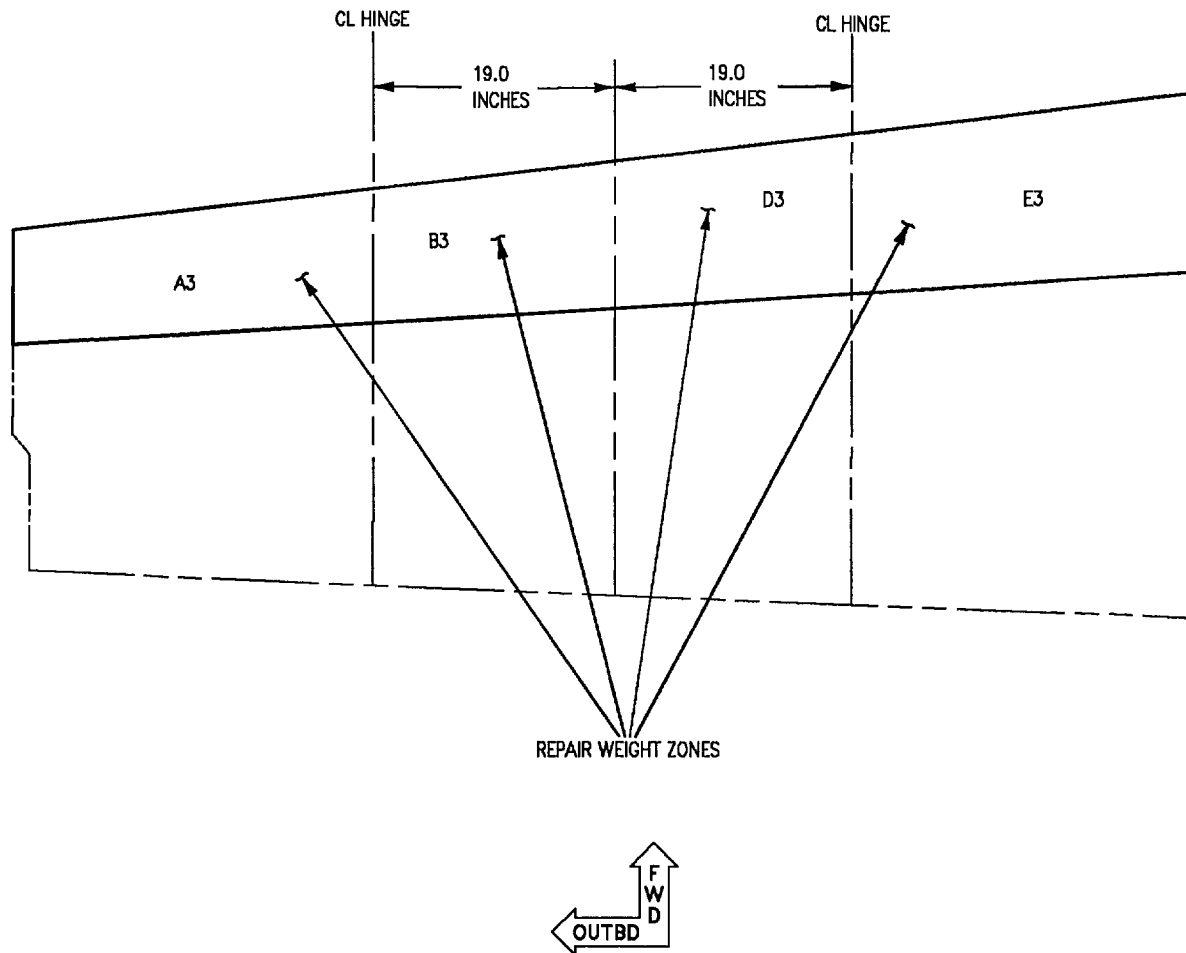


Figure 3. Repair Zones (Sheet 6)



ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT(LB)
A3	1
B3	1
D3	1
E3	1

Figure 4. Repair Weight Zones

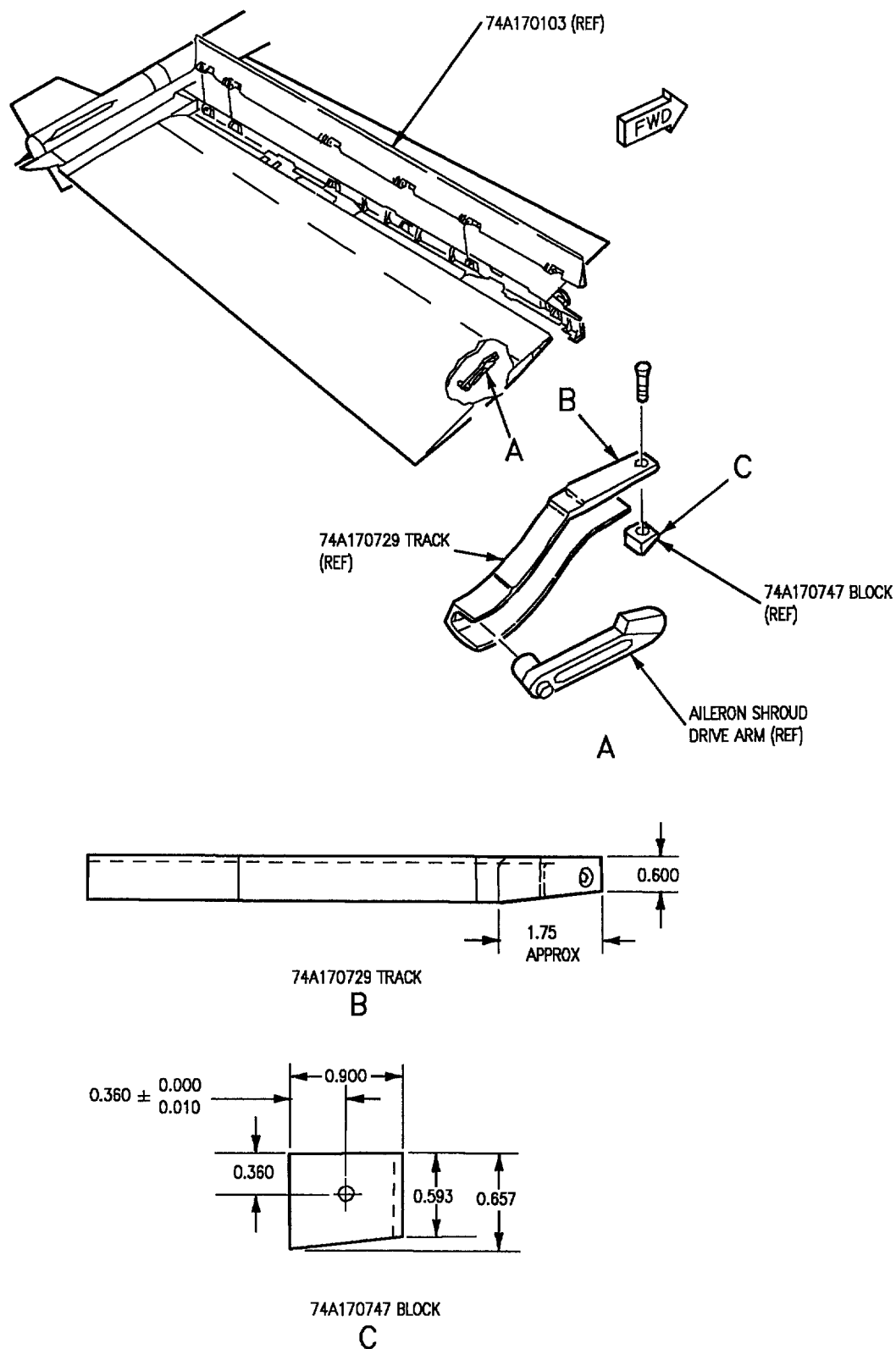
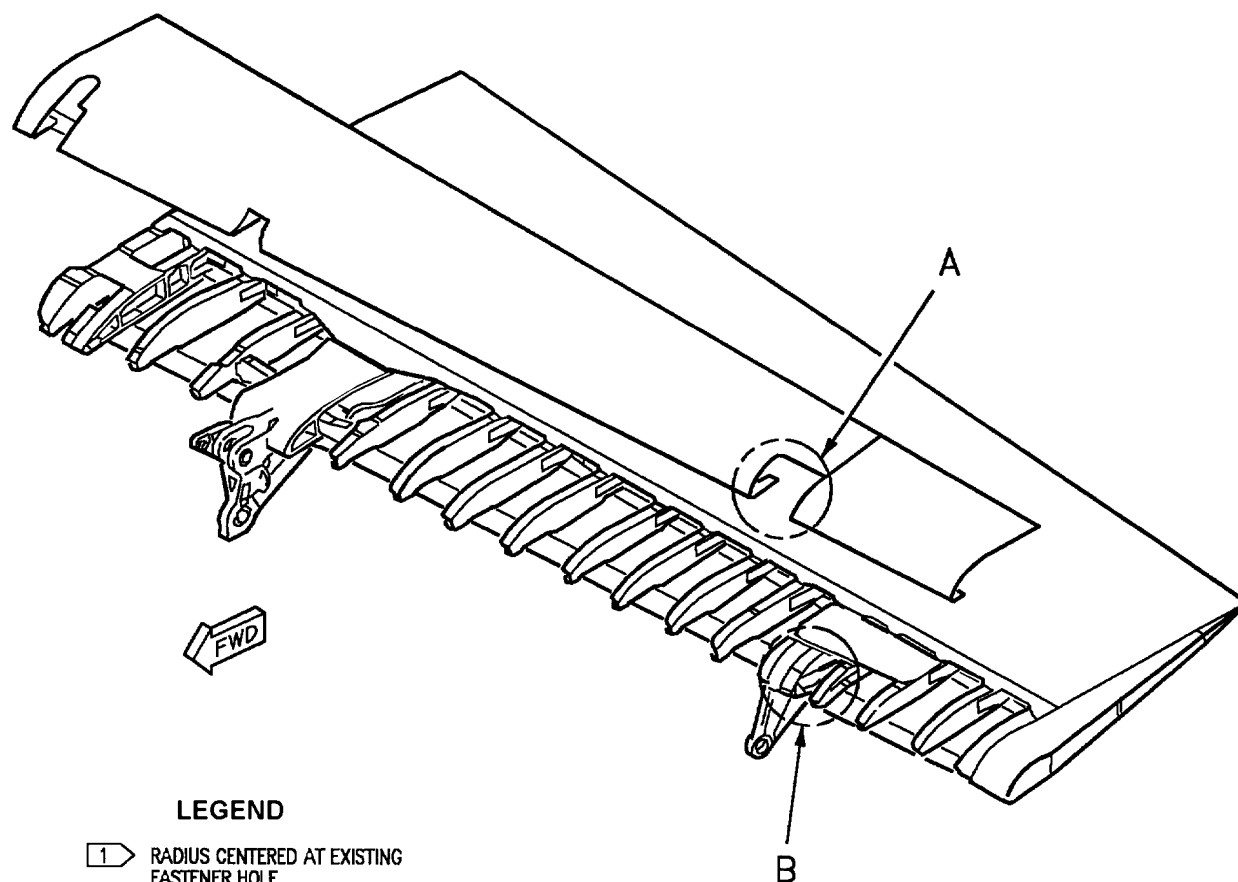
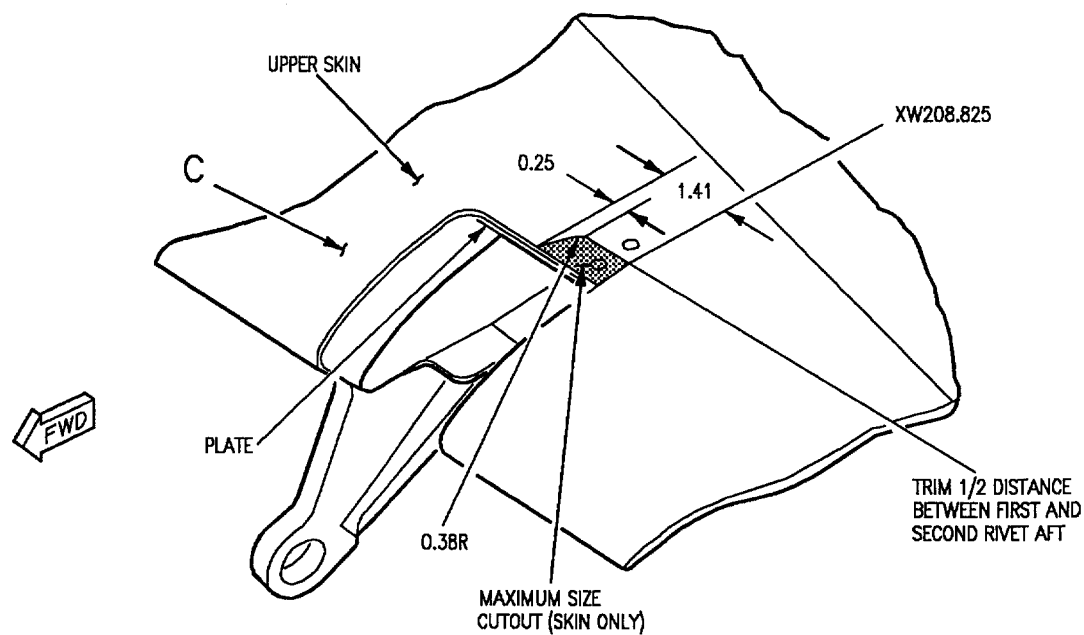


Figure 5. Repair of Track, 74A170729, Inboard Aileron Shroud

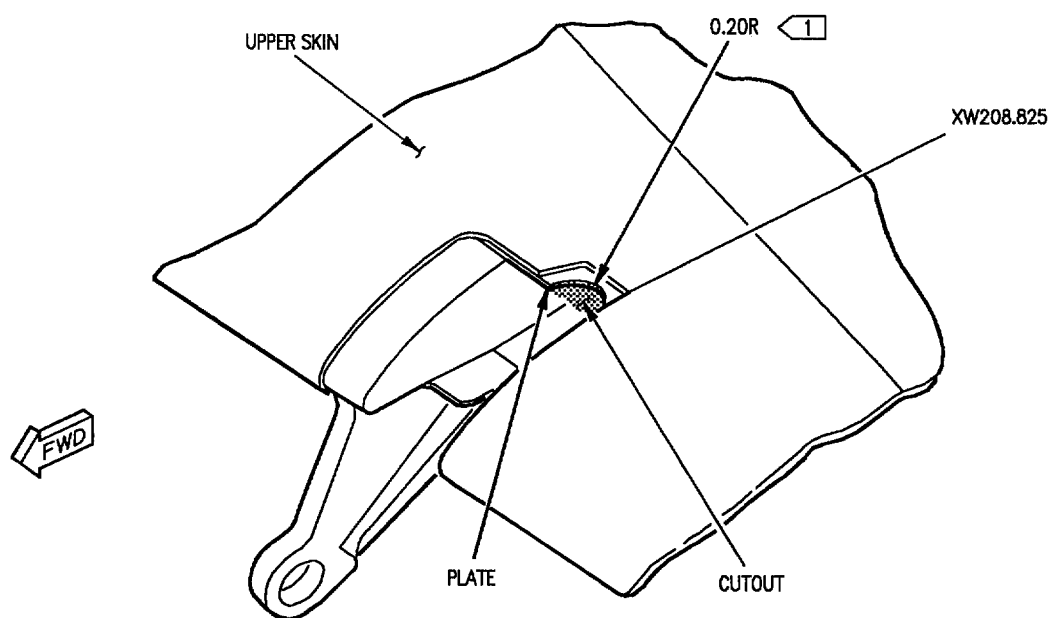
**LEGEND**

- 1 RADIUS CENTERED AT EXISTING FASTENER HOLE.
- 2 PLT1058-6 BLIND FASTENER (6 REQUIRED).
- 3 USE AIC-L-611V5 PIN AND HL570-5MC COLLAR, IF FULLY ACCESSIBLE, IF BLIND FASTENER REQUIRED, USE NAS1399C-5.
- 4 MAINTAIN 2D  $\pm 0.03$  EDGE DISTANCE FROM FASTENERS.
- 5 INSTALL FASTENERS WET WITH MIL-S-8802.
- 6 CHAMFER EDGE OF DOUBLER.

Figure 6. Upper Skin Repair at Outboard Hinge (Sheet 1)



A



B

Figure 6. Upper Skin Repair at Outboard Hinge (Sheet 2)



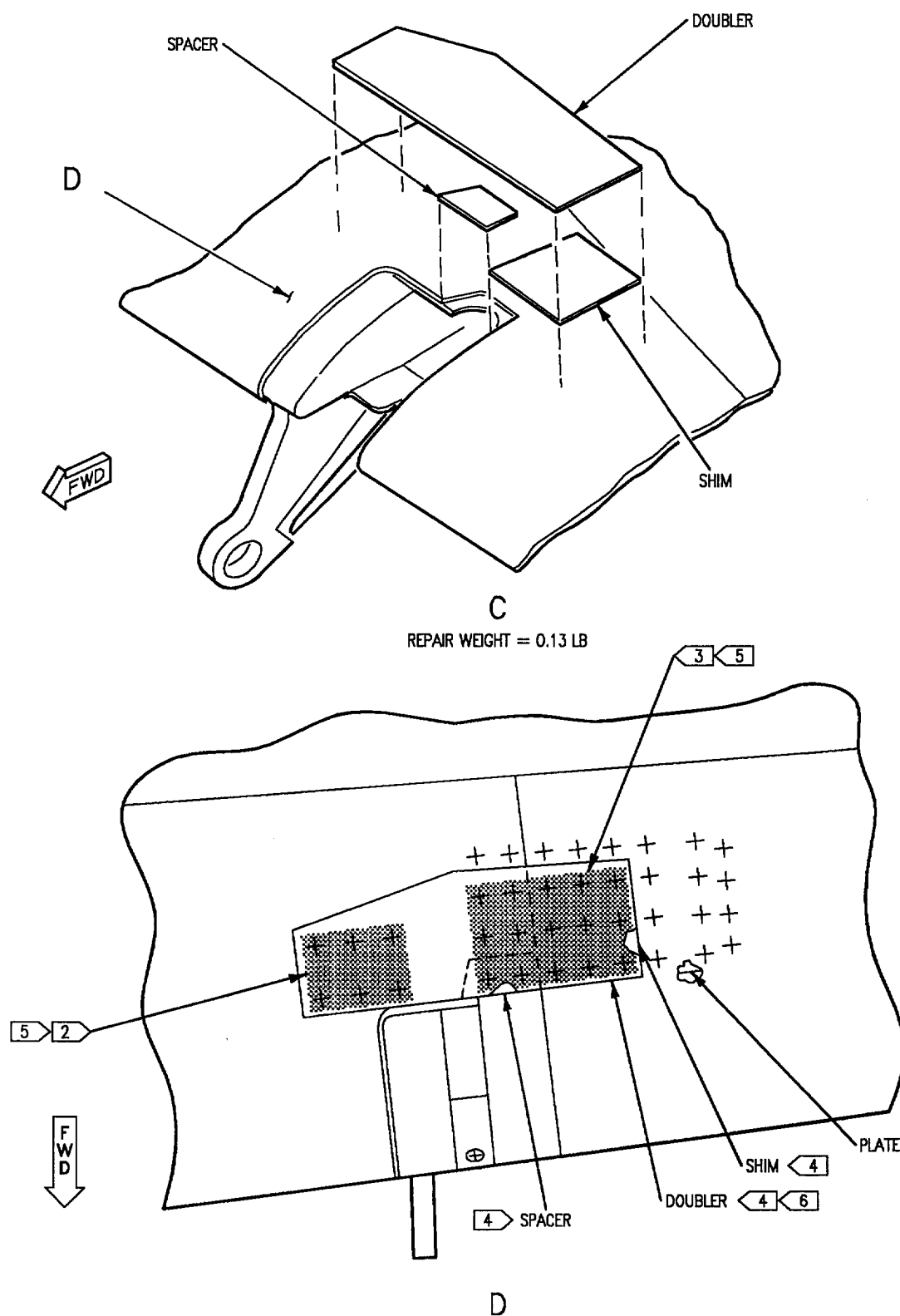


Figure 6. Upper Skin Repair at Outboard Hinge (Sheet 3)

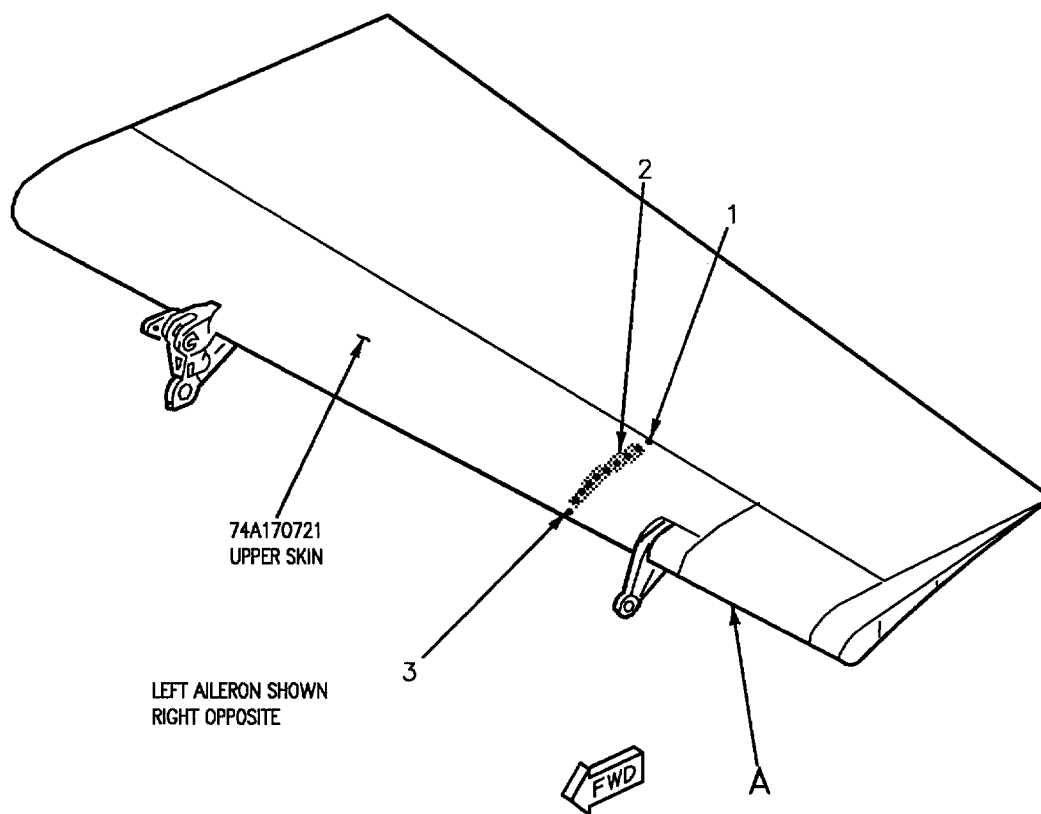


Figure 7. Lower Center Skin Repair at Outboard Hinge (Sheet 1)

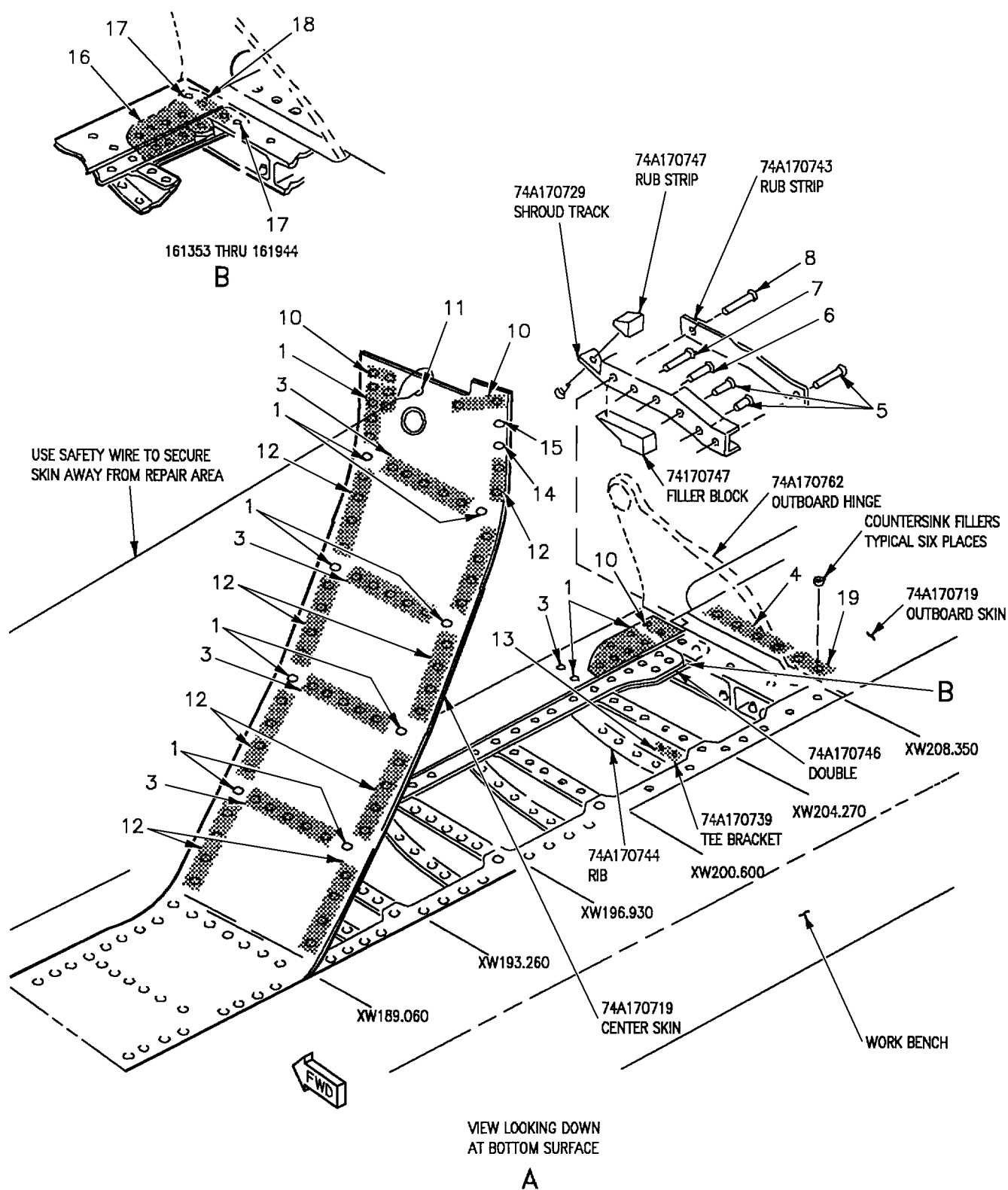


Figure 7. Lower Center Skin Repair at Outboard Hinge (Sheet 2)





















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2			Solid Rivet	BRFS4AD
3			Blind Rivet	NAS1399C4A2
4		 	Solid Rivet	MS20470T6
5		 	Pin Collar Pin Collar	HL611-5-5 HL570-5MC HL11V6-5 HL570-6MC
6		 	Pin Collar Pin Collar	HL611-5-8 HL570-5MC HL11V6-8 HL570-6MC
7		 	Pin Collar Pin Collar	HL611-5-12 HL570-5MC HL11V6-12 HL570-6MC
8	 	 	Pin Collar Pin Collar Pin Collar	HL611-5-19 HL570-5MC HL611-5-16 HL570-5MC HL11V6-17 HL570-6MC
9			Screw	HT4024L3-2
10			Blind Rivet	PLT1058-6-4
11			Blind Rivet	PLT1058-6-3
12	 		Blind Rivet	NAS1674-08L-3 NAS1399C5A3
13			Solid Rivet	MS20470AD5
14			Blind Rivet	PLT1058-5-3
15			Blind Rivet	PLT1058-5-4
16			Blind Rivet	NAS1674-08L-4

Figure 7. Lower Center Skin Repair at Outboard Hinge (Sheet 3)















Idx No.	Eft		Nomenclature	Part Number
17			Blind Rivet	PLT1058-08-4
18			Blind Rivet	PLT1058-6-4
19		 	Solid Rivet	MS20470T6
<p style="text-align: center;"><b>LEGEND</b></p> <p> Length of rivet determined on installation.</p> <p> First oversize repair fastener.</p> <p> Tighten screw until 74A170747 block contacts 74A170729 track, then tighten an additional 1/2 turn.</p> <p> 161353 THRU 161944.</p> <p> 161353 THRU 161940, 161942.</p> <p> 161941, 161943 AND UP.</p> <p> 161353 THRU 162474.</p> <p> 162475 AND UP.</p> <p> Install these rivets using compression drive riveter only.</p> <p> Install these rivets using vibration drive or compression drive riveter.</p>				

Figure 7. Lower Center Skin Repair at Outboard Hinge (Sheet 4)

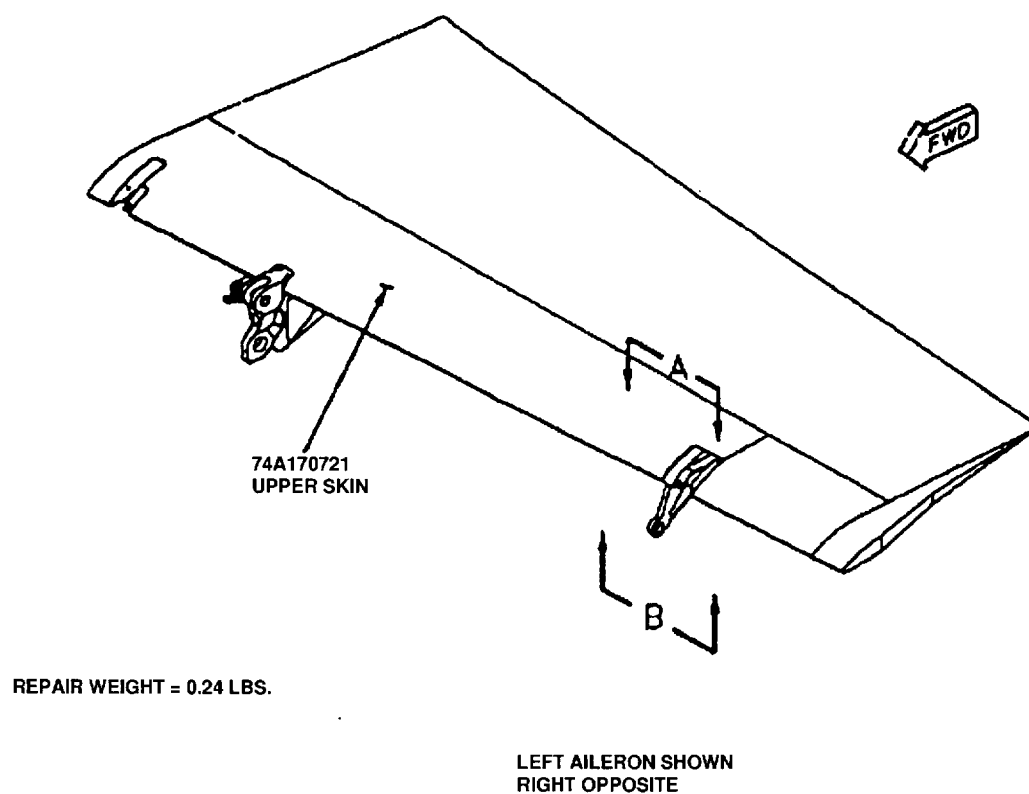


Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 1)

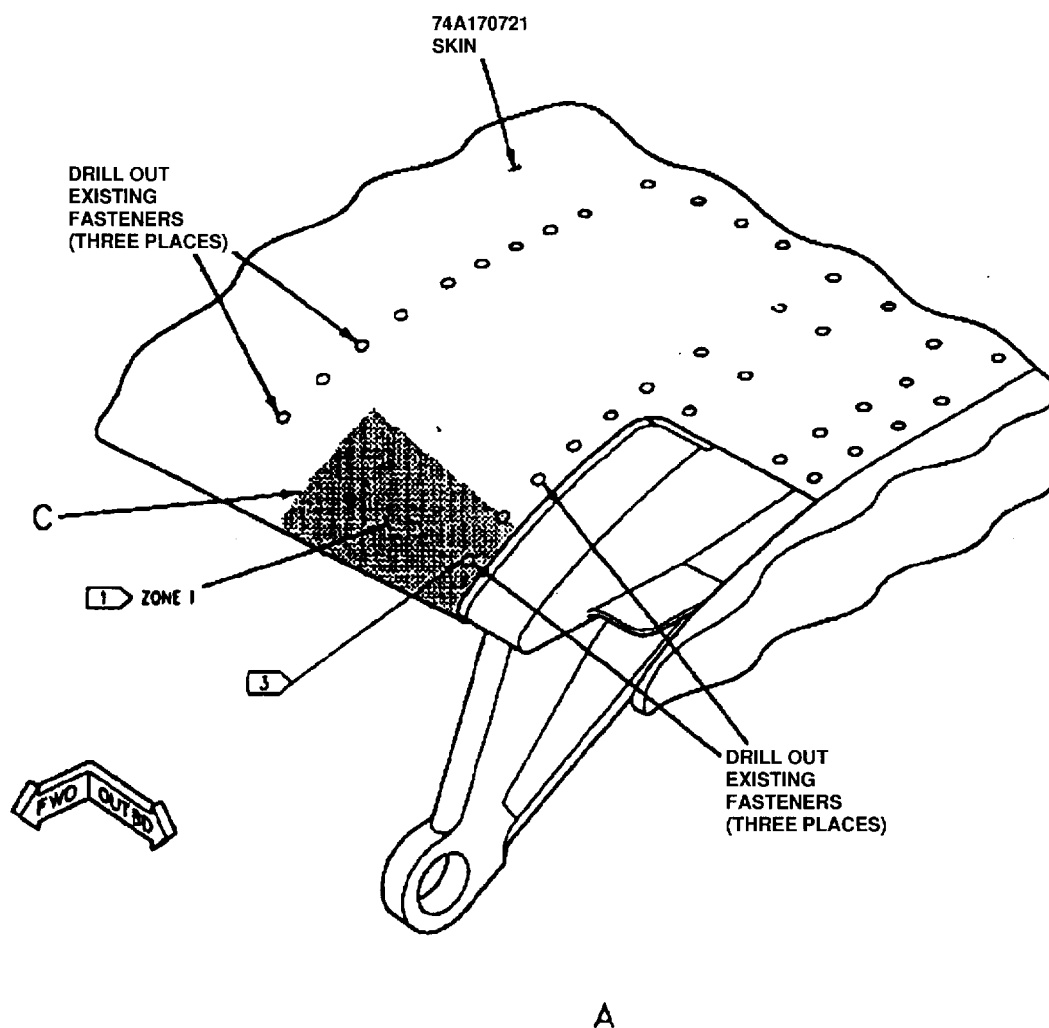
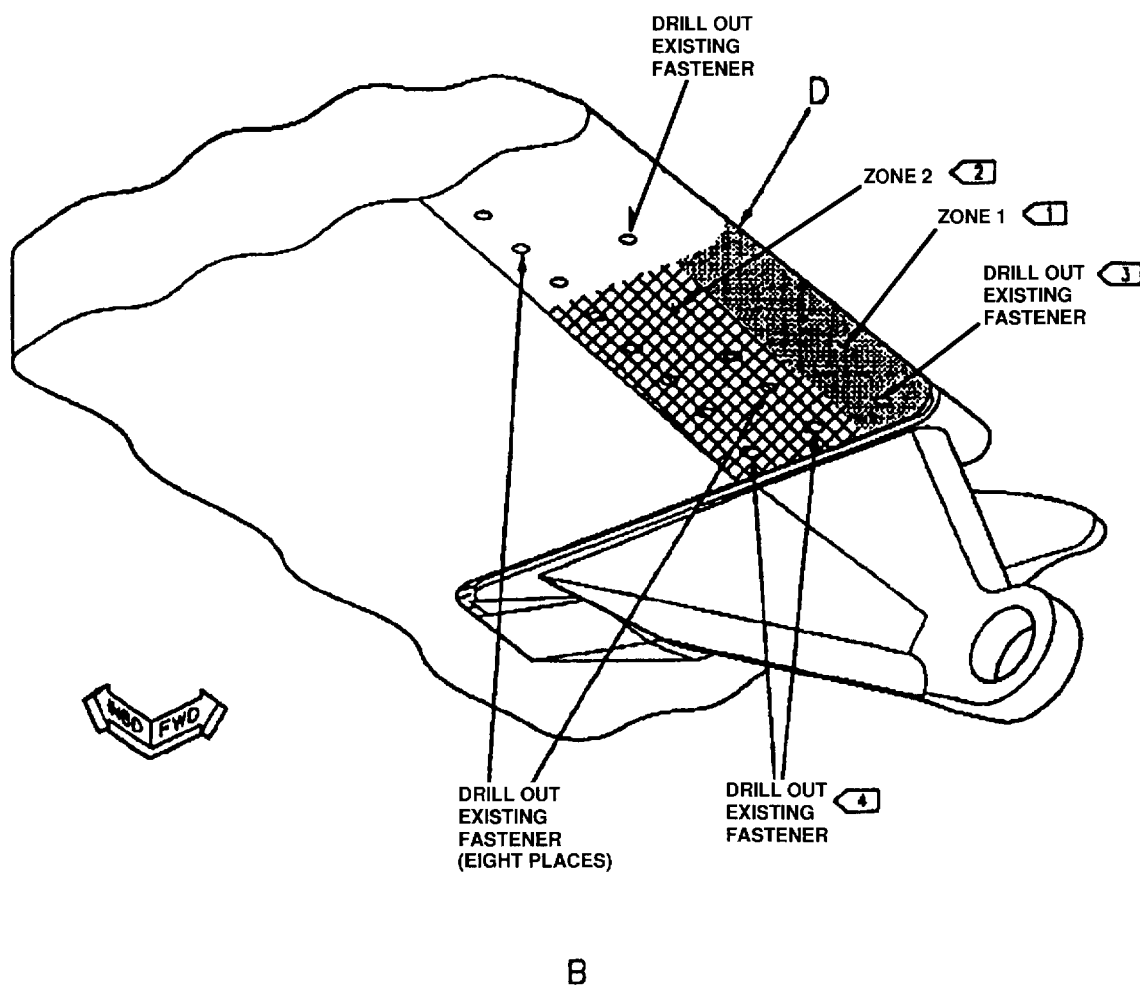


Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 2)



**Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 3)**



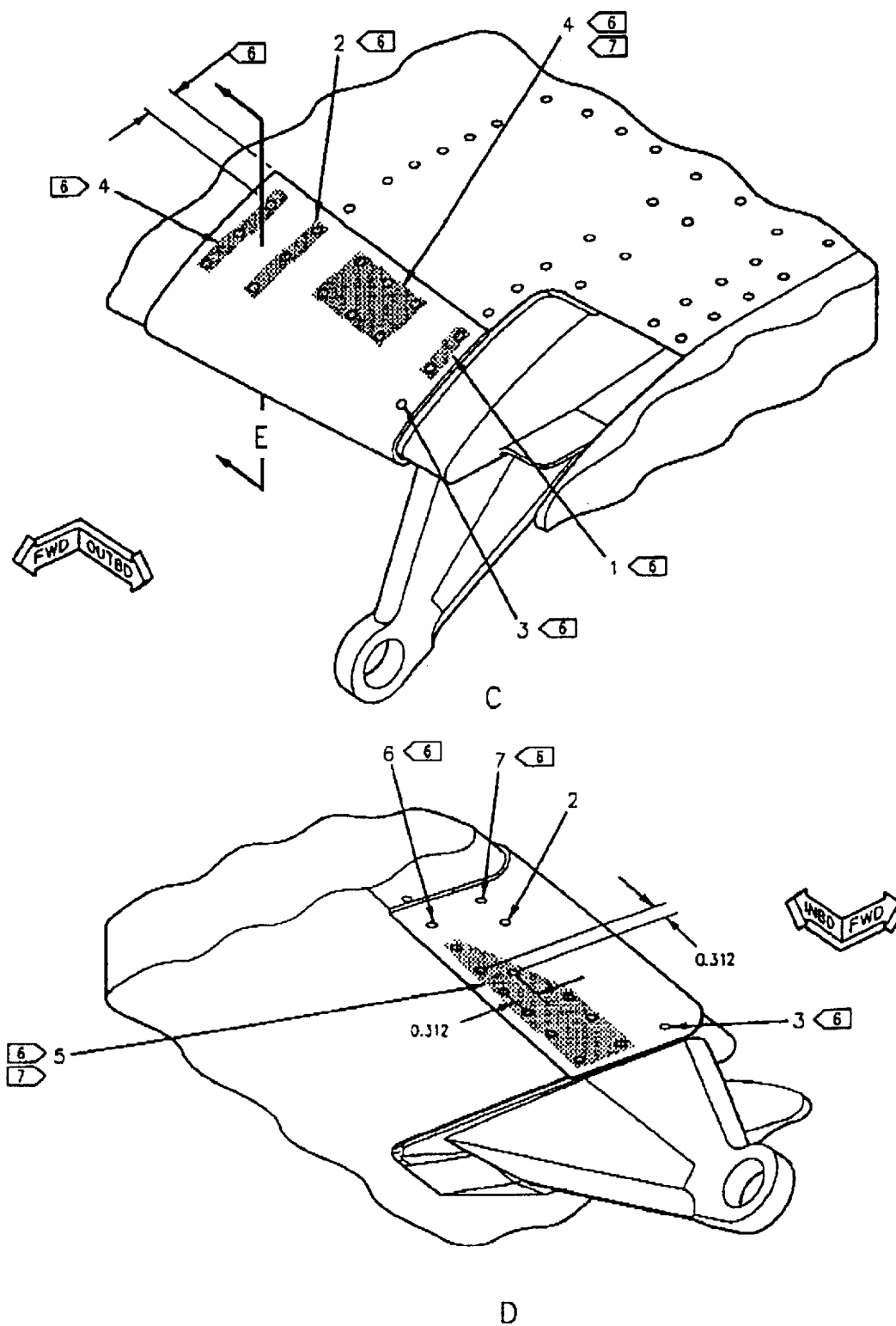


Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 4)

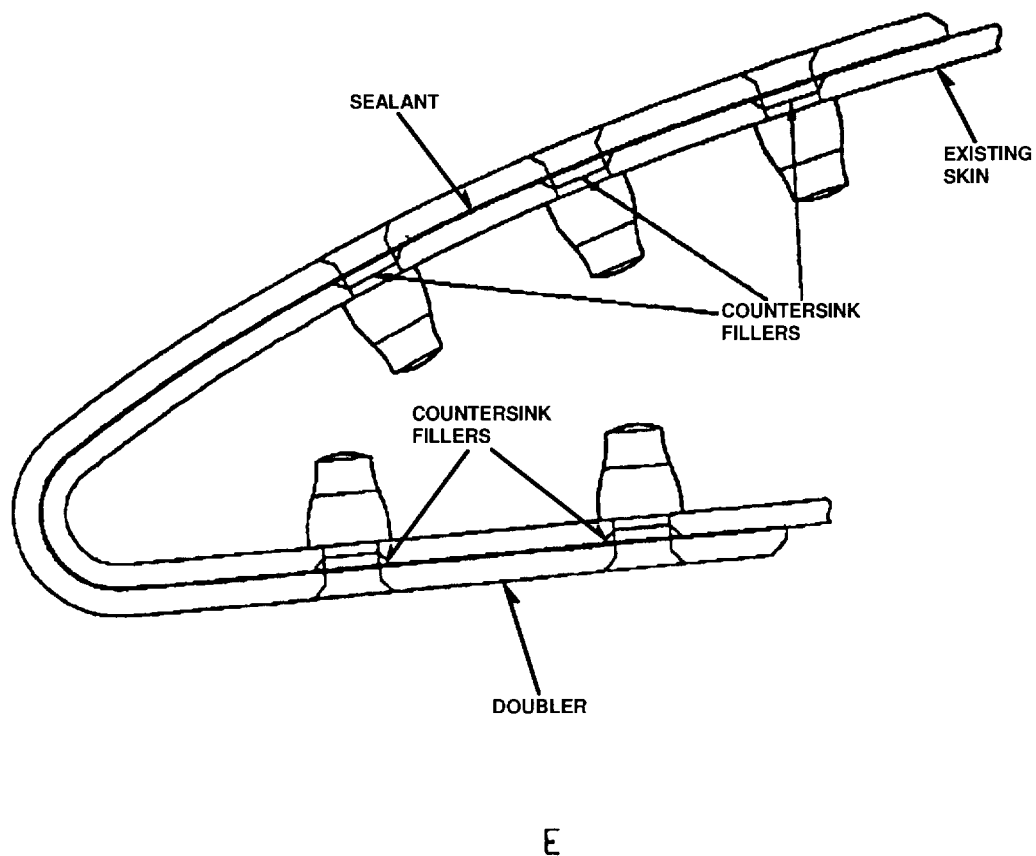


Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 5)

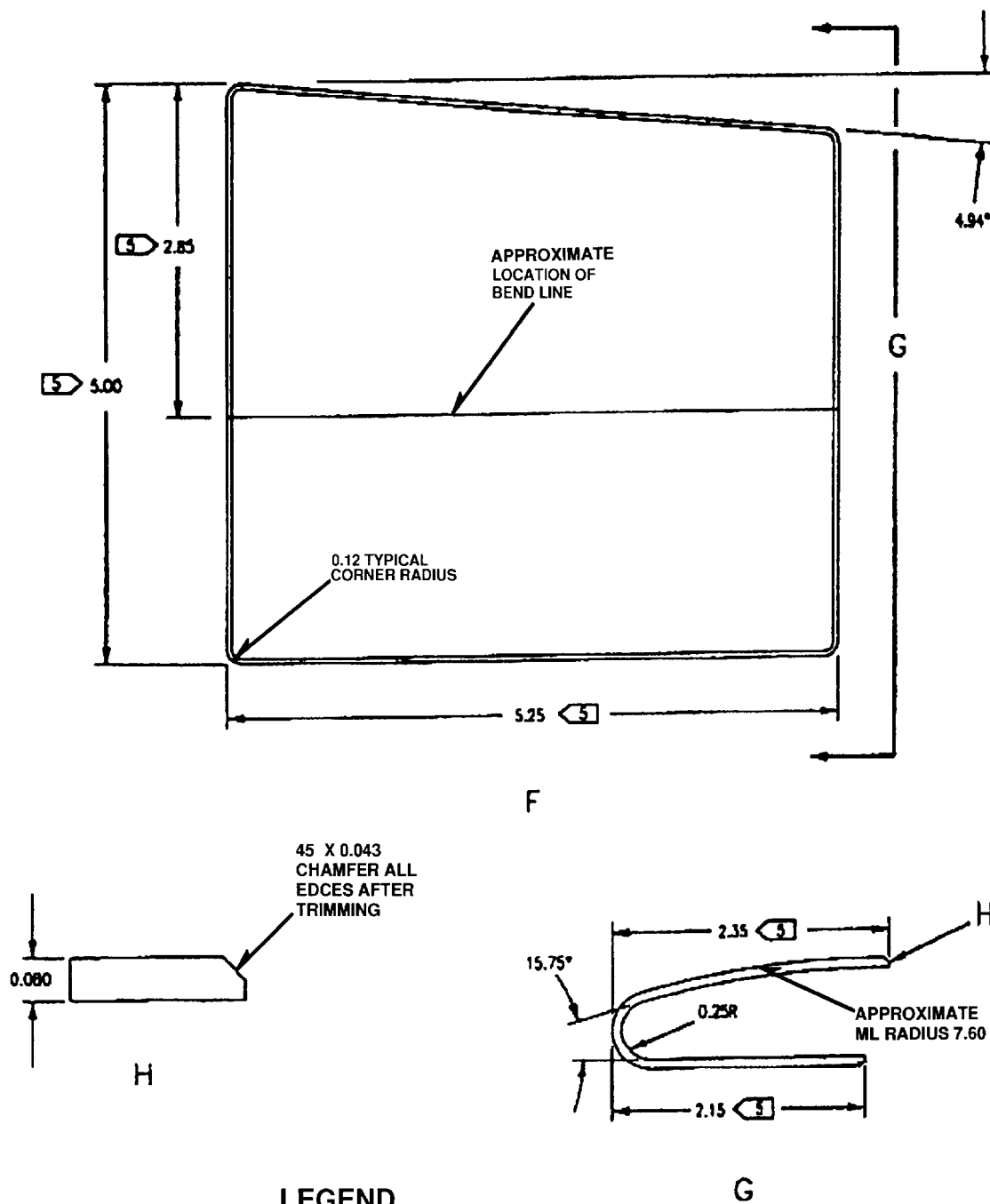


Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 6)


















Idx No.	Eft		Nomenclature	Part Number
1			Blind Rivet	PLT1058-6-4
2			Blind Rivet	PLT1058-5-3
3			Solid Rivet	MS20470D6-14
4			Blind Rivet	PLT1058-5-2
5			Blind Rivet	PLT1058-6-2
6			Blind Rivet	PLT1058-6-3
7			Blind Rivet	PLT1058-6-2
<p style="text-align: center;"><b>LEGEND</b></p> <p> Use 0.375 diameter stop drill.</p> <p> Use 0.250 diameter stop drill.</p> <p> Rivet is double countersink, manufactured head and bucked head of rivet is not perpendicular to aileron surface. When removing do not drill all the way through, damage to rib could result.</p> <p> If fastener holes require oversizing, holes must be cold worked.</p> <p> Dimension are approximate, trim edges as required.</p> <p> Maintain two diameter edge distance.</p> <p> Maintain four diameter distance between fasteners.</p> <p> Hole diameter is 0.199 +0.033 -0.000.</p> <p> Hole diameter is 0.1645 +0.0030 -0.0000.</p> <p> Hole diameter is 0.192 +0.006 -0.000.</p>				

Figure 8. Repair of Damage 74A170721 Aileron Skin (Sheet 7)

## 17. REPLACEMENTS.



18. **FAIRING, 74A170760.** See figure 9. Fairing is interchangeable. Fastener attaching hardware is shown on figure 9. For fasteners and attaching parts, refer to (A1-F18AC-SRM-410, FIG006 00).

Use care when drilling out rivets not to damage 74A170604 or 74A170762 rib.

19. **ELECTRICAL BONDING SPRING.** See figure 10. Replacement of electrical bonding springs is intermediate maintenance. For parts requisitioning (A1-F18AC-SRM-410, FIG006 00). This procedure is applicable to 74A170649 electrical bonding springs attached to 74A170604 inboard drive hinge rib assembly and 74A170751 electrical bonding springs attached to 74A170762 outboard hinge half.

c. Drill out rivets attaching electrical bonding springs to 74A170604 or 74A170762 rib.

d. Remove electrical bonding springs and inspect 74A170604 or 74A170762 rib for corrosion. For corrosion inspection and removal, refer to (A1-F18AC-SRM-500, WP005 00) and paragraph 1, this WP.



## Support Equipment Required

Nomenclature	Part Number or Type Designation
Aircraft Structure Repair Tool Kit	74D110325-1001
Compression Riveter, Squeezer	-
Drill Motor, Variable Speed	No. 11 DPV-15DA-450/1250
Ohmmeter	AN/USM-21A or Equivalent

Finish system must remain on hinge skin, under terminal strips, to prevent corrosion.

e. Apply finish system as required (A1-F18AC-SRM-500, WP027 00).

f. Install new electrical bonding springs:

(1) Fay seal mating surfaces of electrical bonding springs and 74A170604 or 74A170762. For fay sealing, refer to (A1-F18AC-SRM-200, WP011 00).

## Materials Required

Nomenclature	Specification or Part Number
Rivet, Solid (As Required)	MS20470AD4
Rivet, Solid (As Required)	MS20470AD5
Sealing Compound	MIL-S-83430, Class B-1/2
Spring, Electrical Bonding	74A170649-2001
Spring, Electrical Bonding	74A170649-2003
Spring, Electrical Bonding	74A170649-2004
Spring, Electrical Bonding	74A170751-2001

a. Remove aileron (A1-F18AC-570-300, WP010 00).

b. Place aileron on a suitable workbench or holding fixture.



Do not vibration drive rivets. Damage to 74A170604 or 74A170762 rib may result.

## NOTE

Grounding requirement is made through attaching rivets. Do not wet install rivets with sealing compound. Rivets may come with protective (non-conductive) coating. Coating must be removed prior to installation.

(2) Attach new electrical bonding springs to 74A170604 or 74A170762 rib using MS20470 rivets. Determine length of rivet on installation. Install rivets using compression rivet squeezer.



Sealing Compound



6

(3) Apply fillet seal around periphery of electrical bonding springs contacting 74A170604 or 74A170762 rib. For fillet sealing, refer to (A1-F18AC-SRM-200, WP011 00).

g. Resistance Measurement.

(1) Locate a bare metal area on the 74A170604 or 74A170762 rib assembly.

(2) Check the resistance between electrical bonding springs to bare metal area of 74A170604 or

74A170762 rib. The maximum DC resistance is 0.0025 ohms. Refer to (NAVAIR 01-1A-505, WP018 00) for resistance check. If resistance is above the maximum, remove and replace electrical bonding springs.

h. Apply finish system as required to any bare metal areas (A1-F18AC-SRM-500, WP027 00).

i. Install aileron (A1-F18AC-570-300, WP010 00).

20. **BEARINGS.** For replacement procedures of bearings in aileron hinges 74A170604 and 74A170736 or 74A170762 (A1-F18AC-SRM-200, WP004 38). For Parts information, refer to (A1-F18AC-SRM-410, FIG 006 00).

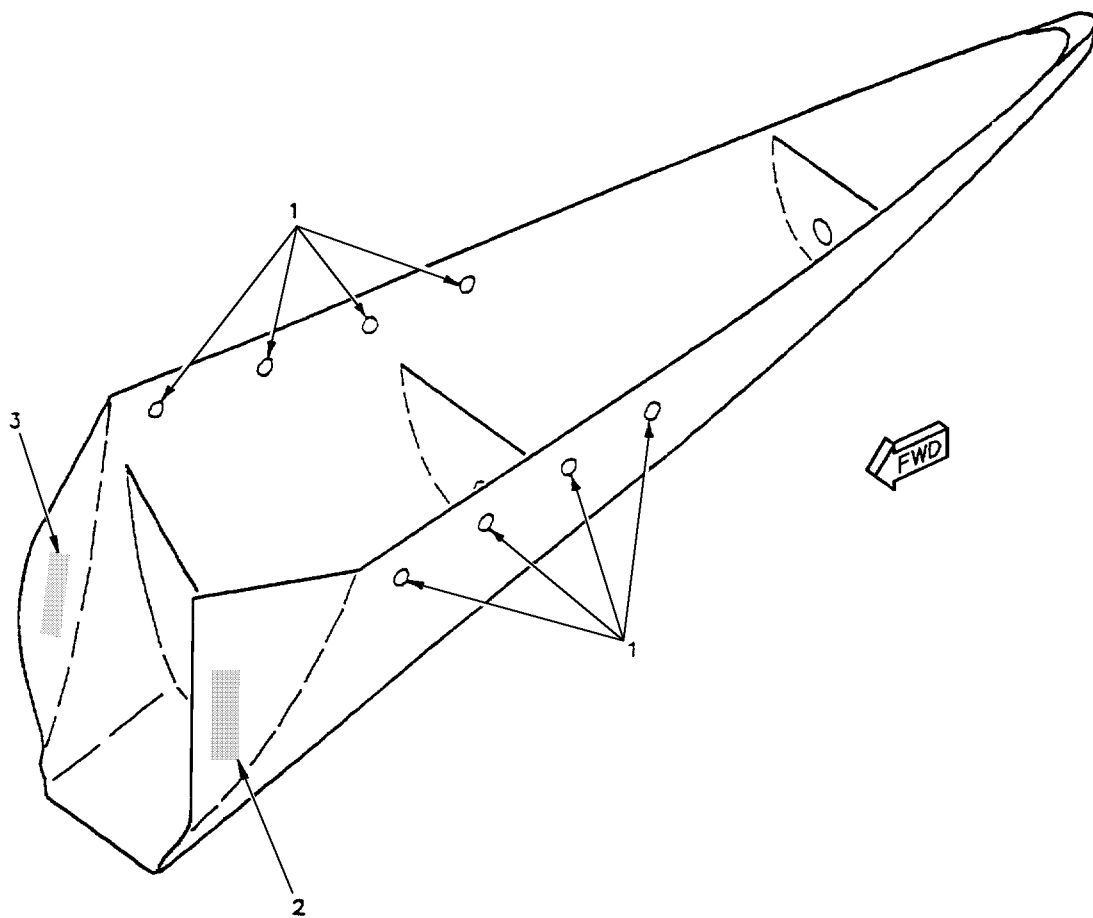


Figure 9. 74A170760 Fairing Replacement (Sheet 1)







Idx No.	Eft		Nomenclature	Part Number
1			Plate Nut	F50339-3-4
2			Gang Channel	G18421JL2-4-13
3			Gang Channel	G18421JL2-3-14
<b>LEGEND</b>				
 Hole diameter is 0.195 +0.006 -0.000.				
 Hole diameter is 0.255 +0.007 -0.000.				
 Length determined on installation.				

Figure 9. 74A170760 Fairing Replacement (Sheet 2)



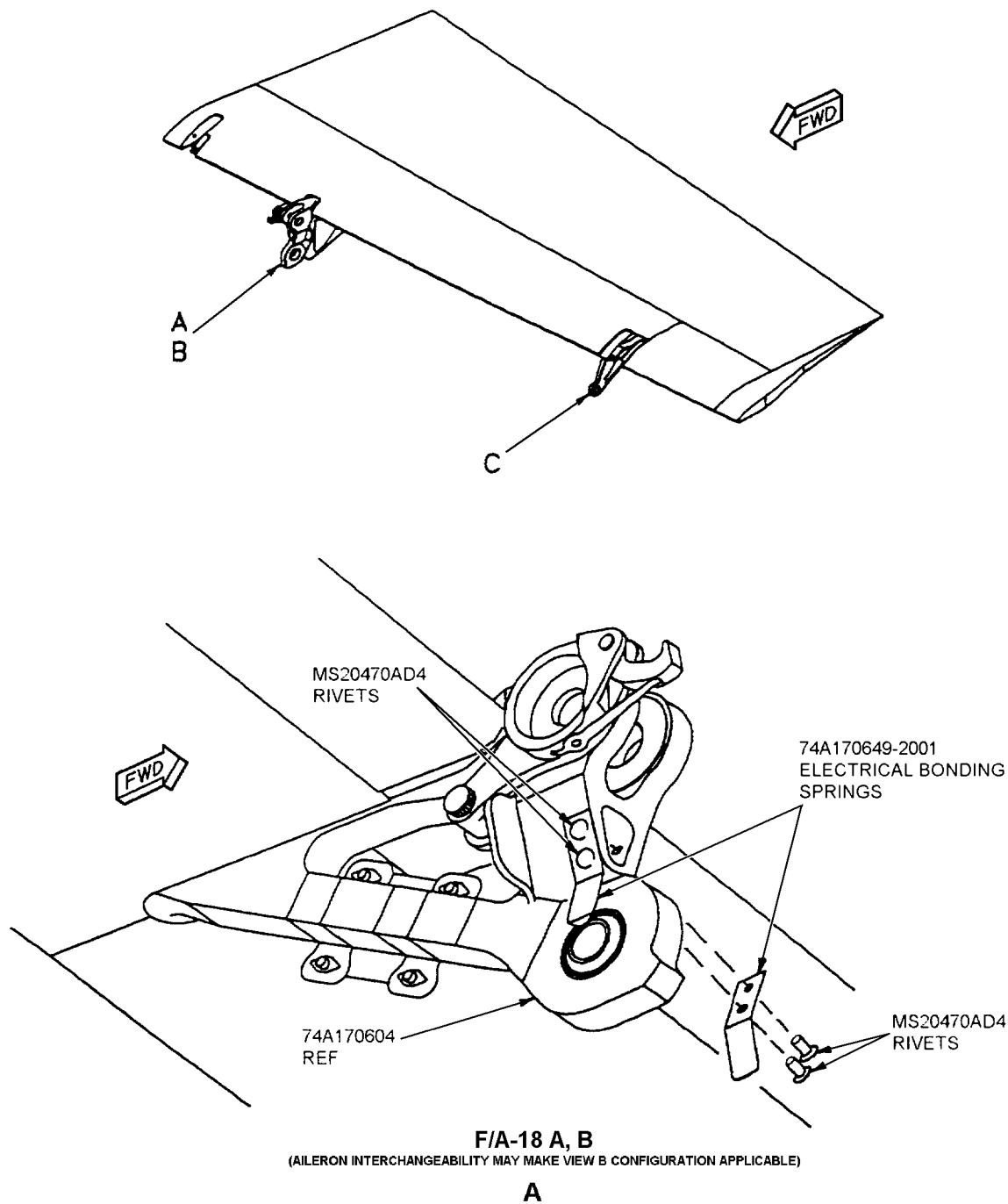
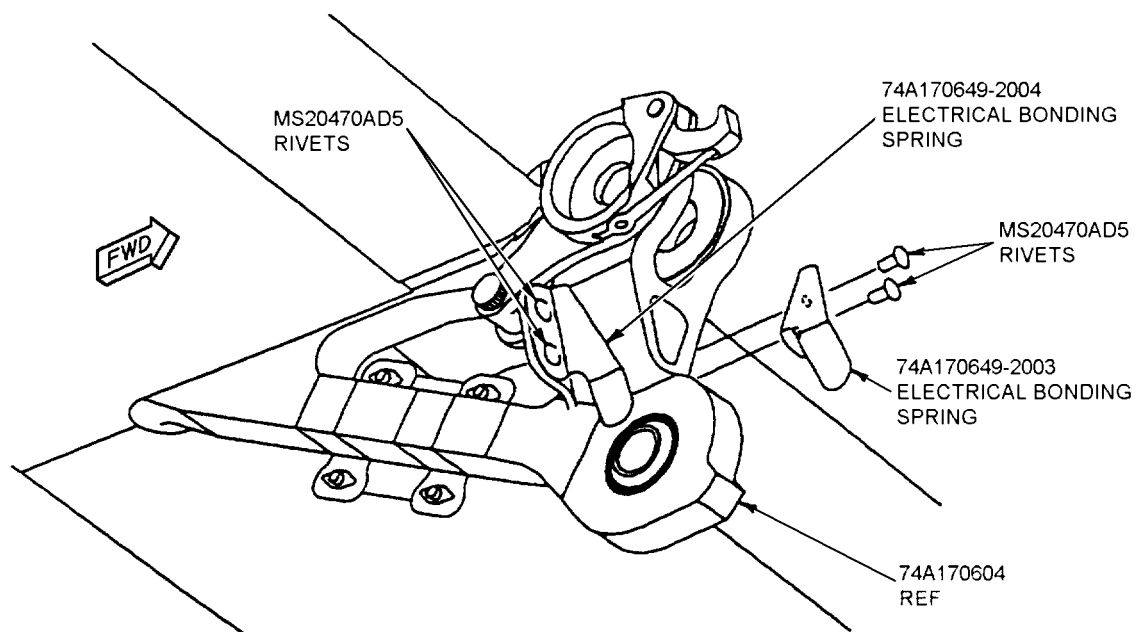
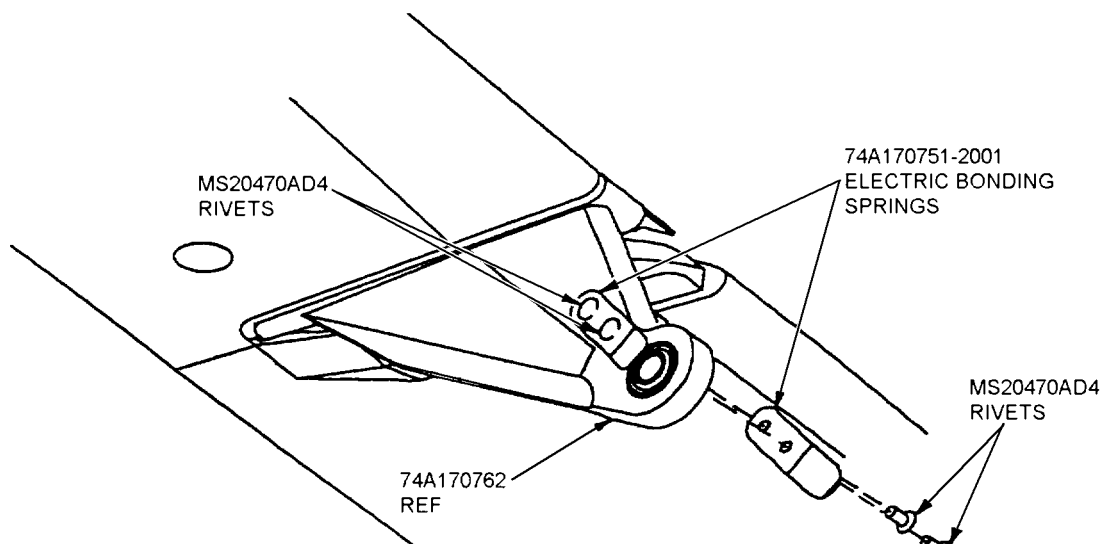


Figure 10. Electrical Bonding Spring Replacement (Sheet 1)



**F/A-18 C, D BUNOS 164865 AND UP**  
(AILERON INTERCHANGEABILITY MAY MAKE THIS CONFIGURATION APPLICABLE)

**B**



**C**

**Figure 10. Electrical Bonding Spring Replacement (Sheet 2)**

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 ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

## AILERON

## TRAILING EDGE

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 Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Aileron, Water in Honeycomb .....	WP009 00
Pulse Echo, Longitudinal Wave Contact, Without Delay Line, For Composite Laminate Material .....	WP008 02
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Locating Blind Holes and Trim Lines .....	WP004 03
Forming Sheet Metal .....	WP004 01
Fastened .....	WP004 06
Heat Treatment of Aluminum Alloys .....	WP004 11
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repairs .....	A1-F18AC-SRM-250
Water Removal .....	WP005 00
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class I Damage Repair .....	WP022 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class II Damage Repair .....	WP023 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class III Damage Repair .....	WP024 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class IV Damage Repair .....	WP025 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class V Damage Repair .....	WP026 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class VI Damage Repair .....	WP027 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class VII Damage Repair .....	WP028 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class VIII Damage Repair .....	WP029 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class IX Damage Repair .....	WP030 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core, Class X Damage Repair (Refer to Water Removal) .....	
Blending .....	WP038 00
Use of Equipment History Record (EHR) Card .....	WP048 00

## Reference Material (Continued)

System Maintenance with IPB, Integrated Flight Controls .....	A1-F18AC-570-300
Aileron (84MPU525 or 84MPV526) or Aileron Shroud (84MPU527 or 84MPV528) Electronic Flight Control System .....	WP010 00
Aircraft Weapons System Cleaning and Corrosion Control .....	NAVAIR 01-1A-509
Structural Hardware .....	NAVAIR 01-1A-8

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## Record of Applicable Technical Directives

None

## 1. ALUMINUM SKIN AND ALUMINUM HONEYCOMB CORE.

2. **DAMAGE EVALUATION.** See figures 1 and 2. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

3. **ALLOWABLE REPAIR WEIGHTS.** See figure 2. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on aileron for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restricts future repairs within this zone, proceed with repair and enter required information of EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds within all zones need not be recorded on EHR card.

a. Determine repair weight of previously installed class IV and VI damage up to 1.5 inch diameter by selecting filler compound weight from table 3. Add weight of filler compound and patch weight selected from applicable table referenced in figure 2. The weight of one patch with bonding adhesive is listed in the table; for a repair with two patches multiply listed patch by two.

b. For repairs which overlap into more than one repair zone, select the zone that has the most restrictive criteria for repair; such as size of damage allowed, number of patches, and use of specific adhesive. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone, all of the repair weight should be added to that zone.

c. To determine actual weight of adhesive used for injection repair or used as a filler, load and weigh

filler container, then weigh container after use and subtract this weight from loaded weight. This will be the actual adhesive or filler compound weight used to determine total repair weight that is entered on the EHR card. If new total repair weight exceeds limits in figure 2, a depot engineering disposition is required.

## 4. TRAILING EDGE.

5. **Negligible Damage.** See figure 3. Negligible damage is damage which does not exceed the type and limits below and may be allowed to exist as is.

a. Smooth dents free of sharp corners and abrasions over structure. See detail A.

(1) Depth is no more than 0.015 inch.

(2) Diameter is not more than 0.5 inch.

(3) No more than three dents occur in any 3 inch diameter circle.

(4) No more than six dents occurring in any 10 inch diameter circle.

(5) Dents occurring in a line and spaced closer than 1 1/2 dent diameter do not exceed 3 inches in length.

b. Smooth dents free of sharp corners and abrasions not over structure. See detail B.

(1) Depth is no more than 0.020 inch.

(2) Diameter is not more than 0.5 inch.

(3) May have crushed core.

(4) Minimum of one diameter apart measured edge to edge.

c. Voids and separations in the adhesive along the length of the bend radius of structural part and of edge member to core to which the core is bonded.

(1) The width is not wider than the bend radius.

(2) Voids and separations do not exceed two square inches in any 10 square inches.

(3) Voids and separations do not exceed more than five percent of the total bonded area.

d. Scratches, nicks, or gouges in skin, any number.

e. Damage is at least one diameter from any fastener hole.

(1) Depth is no more than 0.0006 inch.

**6. Repairable Damage.** See figure 4. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of aircraft. All damaged areas must be NDI inspected to determine the extent of damage. Damage that exceeds these limits require a depot engineering disposition. No repair weights are added for Class II and Class X.

**7. Voids or Unbonds Between Skin or Core, Class I Damage.** See figure 4, section A. Class I damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add patch weight selected from table 1 or 2 to EA9321 A/B weight from table 4. Add this weight to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Diameter is 4 inches or less.

d. Area of damage does not exceed four percent of bonded area.

**8. Dents, Class II Damage.** See figure 4, section B. Class II damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Diameter is 0.50 to 1.5 inches.

c. Depth is 0.00 to 0.020 inch.

d. May have crushed core.

**9. Dents With Honeycomb Core Damage, Class III Damage.** See figure 4, section C. Class III damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add patch weight selected from table 1 or 2 to EA9321 A/B weight from table 3. Add this weight to

total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Diameter is 0.50 to 1.5 inches.

d. Depth is 0.020 to 0.050 inch.

e. May have crushed core or unbonds.

**10. Damage Less Than 1.5 Inches Length or Diameter to One Skin, Class IV Damage.** See figure 4, Section D. Class IV damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add patch weight selected from table 1 or 2 to EA9321 A/B weight from table 3. Add this weight to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Damage to one skin only.

d. Length or diameter does not exceed 1.5 inches.

e. Core may or may not be damaged.

**11. Damage More Than 1.50 Inches Length or Diameter, Up to 4.00 Inches Maximum, (for zone E1, Up to 5.00 Inches Maximum) to One Skin, Class V Damage.** See figure 2 and figure 4, section E. Class V damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add repair weight selected from table 1 or 2 to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Damage to one skin only.

d. Length or diameter is 1.50 to 4.00 inches or 1.50 to 5.00 Inches for zone E1.

e. Core damage of any level.

**12. Damage Less Than 1.5 Inches Length or Diameter, to Both Skins, Class VI Damage.** See figure 4, section F. Class VI damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add patch weight selected from table 1 or 2 to EA9321 A/B weight from table 3. Add this weight to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Damage may be to both skins.

d. Length or diameter does not exceed 1.5 inches in length.

e. Core damage of any level.

13. Damage More Than 1.50 Inches Length or Diameter, Up to 4.00 Inches Maximum (for zone E1, Up to 5.00 Inches Maximum) to Both Skins, Class VII Damage. Class VII damage includes cracks, bulges, punctures and sharp dents. See figure 2 and figure 4, section G. Class VII damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add repair weight selected from table 1 or 2 to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Damage is to both skins.

d. Crack is 1.5 inches to the maximum length in figure 2.

e. Bulges, punctures, and dents can be enclosed in a circle more than 1.5 inches in diameter and not more than the maximum diameter in figure 2.

f. Core damage of any kind exists.

14. Structure to Skin or Honeycomb Core, Void or Unbond, Class VIII Damage. See figure 4, section H. Class VIII damage is damage which does not exceed limits below:

a. Damage is not in zone C, figure 2.

b. Add EA956 weight from table 4 to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

c. Between skin and edge member, not extending into core.

d. Damage may or may not be open to the edge.

e. Voids between edge member and core.

15. Honeycomb Core Splices, Void or Unbond, Class IX Damage. See figure 4, section J. Class IX damage is damage that occurs at the honeycomb core splice line. Add patch weight selected from table 1 or 2 to EA956 weight from table 4. Add this total to total of all previous repairs within affected zone. If new total repair weight exceeds limit in figure 2, a depot engineering disposition is required.

16. Water in Honeycomb Core, Class X Damage. Inspect for water in honeycomb core (A1-F18AC-SRM-300, WP009 00). Class X damage is water trapped in honeycomb core.

17. **REPAIRS.** Blend scratches, nicks, gouges, or corrosion to aluminum sheet over honeycomb core (A1-F18AC-SRM-250, WP038 00). If, after blending, the following damage limits are exceeded, repair damage per class IV or class V repair.

a. Scratch depth - 0.002 deep.

b. Nicks, gouges - 0.002 deep, over a 1 inch square area.

c. Corrosion - 0.002 deep, over a 1 inch square area.

d. Classes I, II, III, IV, VI, VIII, IX, and X are organizational maintenance. Classes V and VII are intermediate maintenance. See figure 2 for repair zones.

18. **Typical Repairs.** Repair damage by the procedures referenced below.

a. Select applicable tables to determine patch and adhesive weight for Class I damage per figure 2. Repair Class I damage and install patch (A1-F18AC-SRM-250, WP022 00).

b. Repair Class II damage (A1-F18AC-SRM-250, WP023 00).

c. Select applicable tables to determine patch and repair weight for Class III damage per figure 2. Repair Class III damage and install patch (A1-F18AC-SRM-250, WP024 00).

d. Select applicable tables to determine patch and repair weight for Class IV damage per figure 2. Repair Class IV damage and install patch (A1-F18AC-SRM-250, WP025 00).

e. Select table 1 or 2 to determine patch and repair weight for Class V damage per figure 2. Repair Class V damage and install patch (A1-F18AC-SRM-250, WP026 00).

f. Select applicable tables to determine patch and repair weight for Class VI damage per figure 2. Repair Class VI damage and install patch (A1-F18AC-SRM-250, WP027 00).

g. Select table 1 or 2 to determine patch and repair weight for Class VII damage per figure 2.

Repair Class VII damage and install patch (A1-F18AC-SRM-250, WP028 00).

h. Use table 8 to determine repair weight for Class VIII damage. Repair Class VIII damage (A1-F18AC-SRM-250, WP029 00).

i. Select applicable tables to determine patch and repair weight for Class IX damage per figure 2. Repair Class IX damage and install patch (A1-F18AC-SRM-250, WP030 00).

j. Repair Class X damage (A1-F18AC-SRM-250, WP005 00).

**Table 1. Patch Selection and Weights, Zones A1, A2, B1, B2, D2, E2**

Damage Size (Dia.)	Aluminum Patch		2 Class V Total Repair Weight		3 Class VII Total Repair Weight	
	Size (Dia)	Weight 4 (lb)	Zones A2, B1	Zones A2, B2, D2, E2	Zones A1, B1	Zones A2, B2, D2, E2
0.0 to 0.50	3.0	0.05	-	-	-	-
0.50 to 1.00	3.5	0.06	-	-	-	-
1.00 to 1.50	4.0	0.08	-	-	-	-
1.50 to 2.00	4.5	0.10	0.13	0.12	0.22	0.21
2.00 to 2.50	5.0	0.12	0.16	0.14	0.26	0.25
2.50 to 3.00	5.5	0.14	0.19	0.17	0.31	0.27
3.00 to 3.50	6.0	0.16	0.23	0.20	0.36	0.33
3.50 to 4.00	6.5	0.18	0.26	0.23	0.40	0.37

#### NOTES

1. FM300 must be used for patch to skin bonds. FM404 must be used for core plug to core bonds.

2 The class V repair weight is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For class IV damage repair (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 3.

3 The class VII repair weight is for damage over 1 1/2 inches in and the honeycomb core. For class VI damage repair (up to 1 1/2 inches in diameter), add patch weight for both patches to applicable filler weight in table 3.

4 For damage repair using patch and filler, add patch weight to applicable filler weight in table 3 or 4. Patch weight includes weight of bonding adhesive.



Table 2. Patch Selection and Weights, Zones D1, E1

Damage Size (Dia)	Aluminum Patch		2 Class V Total Repair Weight		3 Class VII Total Repair Weight	
	Size (Dia)	Weight 4 (lb)	Zone D1	Zone E1	Zone D1	Zone E1
0.0 to 0.50	3.0	0.05	-	-	-	-
0.50 to 1.00	3.5	0.06	-	-	-	-
1.00 to 1.50	4.0	0.08	-	-	-	-
1.50 to 2.00	4.5	0.10	0.14	0.14	0.23	0.23
2.00 to 2.50	5.0	0.12	0.17	0.18	0.27	0.28
2.50 to 3.00	5.5	0.14	0.21	0.22	0.32	0.33
3.00 to 3.50	6.0	0.16	0.24	0.26	0.37	0.38
3.50 to 4.00	6.5	0.18	0.28	0.30	0.42	0.44
4.00 to 5.00	7.5	0.24	5	0.41	5	0.50

## NOTES

1. FM300 must be used for patch skin bonds. FM404 must be used for core plug to core bonds.

2 The class V repair weights is for damage over 1 1/2 inches in diameter which penetrates one skin and the honeycomb core. For class IV damage repair (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 3.

3 The class VII repair weights is for damage over 1 1/2 inches in diameter which penetrates both skins and the honeycomb core. For class VI damage repair (up to 1 1/2 inches in diameter), add patch weight to applicable filler weight in table 3.

4 For damage repair using patch and filler, add patch weight to applicable filler weight in tables 3 or 4. Patch weight includes weight of bonding adhesive.

5 Four inch diameter maximum damage allowed in zone D1.

Table 3. Estimated Repair Weights in Pounds for EA9321 A/B and Chopped Glass Floc, Filler Compound, Class III, IV, and VI

Max Damage Size Dia	Depth of Fill - (Inches)				
	0.25	0.50	0.75	1.00	1.5
0.25	-	-	-	-	-
0.50	-	0.01	0.01	0.01	0.02
0.75	0.01	0.01	0.02	0.03	0.04

**Table 3. Estimated Repair Weights in Pounds for EA9321 A/B and Chopped Glass Floc, Filler Compound, Class III, IV, and VI (Continued)**

Max Damage Size Dia	Depth of Fill - (Inches)				
	0.25	0.50	0.75	1.00	1.5
1.00	0.01	0.02	0.04	0.05	0.07
1.25	0.02	0.04	0.06	0.07	0.11
1.50	0.03	0.05	0.08	0.11	0.16

**Table 4. Estimated Repair Weights in Pounds for EA956 Injection of Unbonds**

Length of Core to Webb Unbend	Height of Unbond - (Inches)				
	0.25	0.50	0.75	1.00	1.5
0.50	-	-	-	0.01	0.01
1.0	-	0.01	0.01	0.01	0.02
2.0	0.01	0.01	0.02	0.02	0.04
3.0	0.01	0.02	0.03	0.04	0.05
4.0	0.01	0.02	0.04	0.05	0.07
5.0	0.01	0.03	0.04	0.06	0.09
7.5	0.02	0.04	0.07	0.09	0.13
10.0	0.03	0.06	0.09	0.12	0.17
15.0	0.04	0.09	0.13	0.17	0.26
20.0	0.06	0.12	0.17	0.23	0.35

19. **Specific Repairs.** The procedures below are for skin, core, and structure damage repair. Repairs are intermediate level maintenance.

20. Trailing Edge Minor Damage Repair. See figure 5.

### Support Equipment Required

None

### Materials Required

#### Nomenclature

Cheesecloth

Paper, Abrasive

Sealing Compound

#### Specification or Part Number

CCC-C-440 Type 1,  
Class 1

A-A-1047, Grit  
180-9 X 11  
240-9 X 11

MIL-S-83430

a. No repair weights are added for this repair.

b. Sand damaged area smooth; use 180 grit abrasive paper. Complete surface preparation using 240 grit abrasive paper. Do not exceed maximum dimensions, view A.

c. Clean sanded area with clean, dry cheesecloth.

d. Do chemical treatment to sanded area (A1-F18AC-SRM-500, WP008 00).



Sealing Compound

6

e. Seal edge of sanded area with sealing compound (A1-F18AC-SRM-200, WP011 00).

21. Trailing Edge Skin and Core Repair. See figure 6. Repair weight is shown in figure.

## Support Equipment Required

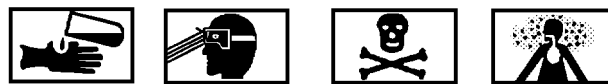
None

## Materials Required

Nomenclature	Specification or Part Number
7075-T6 Alclad (one side only), 0.020 Sheet	QQ-A-250/13
Adhesive	EA9321A/B
Adhesive	FM300
Adhesive Compound	EA960F
Adhesive Film	FM404
Honeycomb Core Kit	135001-1001, -1002, -1005, -1007, -1009, or -1011, 1/8-inch cell, 0.002 Inch Thick Foil
or	or
Aluminum Alloy	74K000005
Honeycomb Plug	
Repair Kit	
Paper, Abrasive	A-A-1047, Grit 240-9X11
Plastic Sheet	MIL-P-18177, Type GEE0
Sealing Compound	MIL-S-83430, Class B-4

a. Remove damaged upper and lower skins, and core. Cut out only enough to remove damage, up to maximum dimensions, view A.

b. Get replacement core and trim to fit cutout area.



Adhesive Film

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c. Install replacement core, Class VII Damage, repair using FM404 film adhesive (A1-F18AC-SRM-250, WP028 00).

d. Fabricate trailing edge part from plastic sheet, to fit cutout area. Make flush with upper and lower mold line, view B.



Adhesive

3

e. Bond trailing edge part in place with EA9321 A/B adhesive (A1-F18AC-SRM-200, WP011 00).

f. Select upper and lower patches (A1-F18AC-SRM-250, WP006 01). Make sure patches have 1.5 inch overlap for bond line, view B.

g. Install patches per Aluminum Patch Installation using FM300 method (A1-F18AC-SRM-250, WP007 00).



Adhesive Compound

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h. After cure, fair patches into mold line with EA960F adhesive compound (A1-F18AC-SRM-200, WP011 00).



Sealing Compound

6

i. Apply sealing compound to trailing edge of repair (A1-F18AC-SRM-200, WP011 00).

j. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

22. Trailing Edge Inboard or Outboard Corner Repair without Rib Fabrication. See Figure 7. Details A and

B are for inboard corner; details C and D are for outboard corner. Repair weights are shown in figure.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Face Shield	MIL-STD-1202
Respirator	GGG-M-125/6

### Materials Required

Nomenclature	Specification or Part Number
Adhesive	EA9321A/B
Adhesive	FM300
Adhesive Compound	EA960F
Apron, Utility	MIL-A-41829
Cheesecloth	CCC-C-440, Type 1, Class 1
Cleaner, Metal, for Aluminum	222555
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Paper, Abrasive	A-A-1047, Grit 180-9X12 240-9X11
Paper, Untreated Kraft	A-A-203, Grade A
Plastic Sheet	MIL-P-18177, Type GEE0
Primer	BR-127, Type III
Rivet, Solid	MS20470AD3
Sealing Compound	MIL-S-83430, Class B-4
Tape, Pressure Sensitive	855-1.000
Tape, Vinyl Plastic	470

a. Remove damaged upper and lower skins, and core. Cut out only enough to remove damage, up to maximum dimensions, views A or C.

b. Fabricate block from plastic sheet to fit cutout area. Make flush with upper and lower mold line, views B or D.

c. Scuff surfaces of block that will be bonded to core, rib, and upper and lower patches, with 240 grit abrasive paper.

d. Dry surface to be repaired per Drying Sandwich Structure (A1-F18AC-SRM-250, WP007 00).

e. Prepare repair area by removing paint from area where patch will be bonded using 180 grit abrasive paper.

### NOTE

Check block for flushness before bonding of patch. The repair should be flush or not more than 0.015 inch below skin surface. If a surface depression is less than 0.015 inch, make repair per steps below. If skin surface has a depression more than 0.015 inch, a depot engineering disposition is required.

f. Mask patch area per substeps below:



Be careful not to scratch surface with knife blade when trimming tape. Any scratches beyond negligible limits shall be blended and surface recleaned.

(1) Seal cutout area with vinyl tape.

(2) Mask an area with pressure sensitive tape, equal to size of patch to be bonded plus 1 inch all around.

(3) Sand remaining exposed area to a uniform finish using 240 grit abrasive paper.

g. Wipe surface clean with clean, dry cheesecloth.



Metal Cleaner

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h. Brush apply metal cleaner over exposed surface. Apply at room temperature. To keep from drying out, apply as required to keep wet for at least 15 minutes.



Wear clean cotton gloves when making repairs to prevent contamination.

i. Wipe off metal cleaner with clean, dry cheesecloth.

j. Thoroughly remove any metal cleaner residue from bonding surface using clean cheesecloth saturated with tap water.

k. Check for water break free surface. Repeat steps h through k at least once so that surface has been cleaned twice. If, after the second cleaning, a water-break occurs, repeat steps h through k until water break-free. If water break-free after two cleanings, continue to step l.

#### NOTE

After drying, if repair surface is not primed within 4 hours, cover repair surface with waxfree paper. If repair surface is not primed within 8 hours of cleaning the complete cleaning procedure must be repeated.

l. Remove vinyl tape seal and tape mask. Lightly wipe surface dry with clean cheesecloth. Dry the bonding surface using hot air gun for 10 minutes, or allow to air dry for at least 30 minutes.



Primer



15

#### NOTE

The primer must be stirred and mixed before use. The solids in the primer will settle out quickly. Stir primer continuously while being used. Do not apply primer liberally to bonding surface.

m. After drying, use clean cheesecloth to make pad for applying primer. Moisten pad with primer and wipe surface to be bonded lightly with pad.

n. Cure primer for 30 minutes at room temperature, then cure with heat blanket for 1 hour at  $240^{\circ} \pm 25^{\circ}\text{F}$ .



Adhesive



3

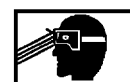
o. Bond block in place with EA9321 A/B adhesive (A1-F18AC-SRM-200, WP011 00).

p. Select upper and lower patches, 0.020 inch, Alclad outer mold line only (A1-F18AC-SRM-250, WP006 01). Make sure patches have 1.0 inch overlap for bond line, views B or D.

q. Install patches per Aluminum Patch Installation (A1-F18AC-SRM-250, WP007 00).

r. Install rivets through upper and lower patches and block by squeezing method, views B or D (A1-F18AC-SRM-200, WP004 06).

s. Do chemical treatment to bare aluminum (A1-F18AC-SRM-500, WP008 00).



Adhesive Compound

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t. After cure, fair patches into mold line with EA960F adhesive compound.



Sealing Compound

6

u. Apply sealing compound to trailing edge of repair and any gaps in repair (A1-F18AC-SRM-200, WP011 00).

v. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

23. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication. See figure 8. Details A through E are for inboard corner, and details F through K are for outboard corner. Repair weights are shown in figure.

#### Support Equipment Required

Nomenclature	Part Number or Type Designation
Face Shield	MIL-STD-1202
Respirator	GGG-M-125/6

## Materials Required

Nomenclature	Specification or Part Number
7075-0 Alclad 0.032 Sheet (for Outboard Replacement Rib)	QQ-A-250/13
7075-T6 Alclad 0.032 Sheet (for Inboard Replacement Rib, and Splice Channel)	QQ-A-250/13
7075-T6 Alclad (one side only) 0.012 Sheet (for Upper and Lower Patches, Inboard Corner)	QQ-A-250/12
7075-T6 Alclad 0.050 Sheet (for Strap)	QQ-A-250/13
7075-T6 Alclad (one side only) 0.020 Sheet (for Upper and Lower Patches, Outboard Corner)	QQ-A-250/12
Adhesive	EA9321A/B
Adhesive	FM300
Adhesive Compound	EA960F
Adhesive Film	FM404
Apron, Utility	MIL-A-41829
Cheesecloth	CCC-C-440, Type 1, Class 1
Cleaner, Metal, for Aluminum	222555
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Honeycomb Core Kit	135001-1001, -1002, -1005, -1007, -1009, or -1011, 1/8-inch cell, 0.002 Inch Thick Foil
or	or
Aluminum Alloy Honeycomb Plug Repair Kit	74K000005
Paper, Abrasive	A-A-1047, Grit 180-9X12 240-9X11
Paper, Untreated Kraft	A-A-203, Grade A
Plastic Sheet	MIL-P-18177, Type GEE0
Primer	BR-127, Type III
Rivet, Solid (8 Required per Inboard Repair)	MS20470AD5
Rivet, Solid (2 Required per Repair)	NAS1097B-3-()
Sealing Compound	MIL-S-83430, Class B-4
Tape, Pressure Sensitive	855-1.000
Tape, Vinyl Plastic	470

a. Remove damaged upper and lower skins, rib, and core. Cut out only enough to remove damage, up to maximum dimensions, views A or F.

b. Fabricate replacement rib, from 0.032 inch aluminum sheet, to fit cutout area, views B or G (A1-F18AC-SRM-200, WP004 01). For inboard rib repair, rib shall be flush with upper and lower mold line. For outboard rib repair, rib shall be flush with existing rib. Heat treat outboard replacement rib to T6 condition (A1-F18AC-SRM-200, WP004 11).

c. Fabricate splice channel from 0.032 inch aluminum sheet, view B, or strap made from 0.050 aluminum sheet, view G, to fit inside replacement rib.

d. Fabricate arrowhead and trailing edge part from plastic sheet to fit cutout area, views B or G.



Adhesive

3

e. Bond splice channel, or strap, to existing rib with EA9321 A/B adhesive, views D or J (A1-F18AC-SRM-200, WP011 00).

f. Bond replacement rib to splice channel, or strap with EA9321 A/B adhesive, views D or J (A1-F18AC-SRM-200, WP011 00).

g. Bond arrowhead to replacement rib with EA9321 A/B adhesive, views D or J (A1-F18AC-SRM-200, WP011 00).

h. Get replacement core and trim to fit cutout area. Make sure ribbon direction matches existing core.

i. Fabricate shims from 0.012 aluminum sheet for outboard corner repair. Install as shown in view J.



Adhesive Film

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j. Bond replacement core in place with FM404 film adhesive (A1-F18AC-SRM-250, WP028 00) Class VII Damage Repair. Spline replacement core to top of shim.

k. Bond arrowhead and trailing edge part to replacement core with EA9321 A/B adhesive (A1-F18AC-SRM-200, WP011 00).

l. Dry surface to be repaired per Drying Sandwich Structure, (A1-F18AC-SRM-250, WP007 00).

m. Prepare repair area by removing paint from area where patch will be bonded using 180 grit abrasive paper.

#### NOTE

Check replacement core for flushness before bonding of patch. The repair should be flush or not more than 0.015 inch, below skin surface. If surface depression exists less than 0.015 inch, make repair per steps below. If skin surface has a depression more than 0.015 inch, a depot engineering disposition is required.

n. Mask patch area per substeps below:



Be careful not to scratch surface with knife blade when trimming tape. Any scratches beyond negligible limits shall be blended and surface recleaned.

(1) Seal cutout area with vinyl tape.

(2) Mask an area with pressure sensitive tape, equal to size of patch to be bonded plus 1 inch all around.

(3) Sand the remaining exposed area to a uniform finish using 240 grit abrasive paper.

o. Wipe surface clean with clean, dry cheesecloth.



Metal Cleaner

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p. Brush apply metal cleaner over exposed surface. Apply at room temperature. To keep from drying out, apply as required to keep wet for at least 15 minutes.



Wear clean cotton gloves when making repairs to prevent contamination.

q. Wipe off metal cleaner with clean, dry cheesecloth.

r. Thoroughly remove any metal cleaner residue from bonding surface using clean cheesecloth saturated with tap water.

s. Check for water break-free surface. Repeat steps p through s at least once so that surface has been cleaned twice. If after the second cleaning, a water break occurs, repeat steps p through s until water break-free. If water break-free after two cleanings, continue to step t.

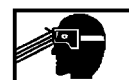
#### NOTE

After drying, if repair surface is not primed within 4 hours, cover repair surface with waxfree paper. If repair surface is not primed within 8 hours of cleaning the complete cleaning procedure must be repeated.

t. Remove vinyl tape seal and tape mask. Lightly wipe surface dry with clean cheesecloth. Dry the bonding surface using hot air gun for 10 minutes, or allow to air dry for at least 30 minutes.



Primer



15

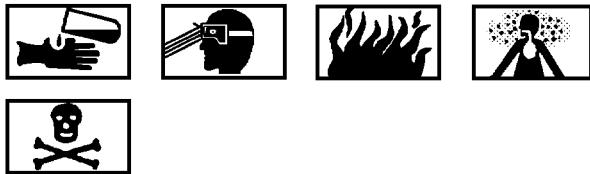
u. After drying, use clean cheesecloth to make pad for applying primer. Moisten pad with primer and wipe surface to be bonded lightly with pad.

v. Cure primer for 30 minutes at room temperature, then cure with heat blanket for 1 hour at 240° ± 25° F.

w. Select upper and lower patches (A1-F18AC-SRM-250, WP006 01). Make sure patches have 1.5 inch overlap for bond line, views C or H.

## NOTE

For outboard corner repair only, step x applies.



Adhesive

4

x. Lay up a layer of FM300 staged adhesive over replacement core. Add a layer of staged adhesive over all the repair area for bonding patches.

y. Install patches per Aluminum Patch Installation (A1-F18AC-SRM-250, WP007 00).

z. For inboard repair, install rivets through patches, ribs, and splice channel at rib splice, views C and E.

aa. Install rivets through patches and arrowhead by squeezing method, views C or H (A1-F18AC-SRM-200, WP004 06).

ab. Do chemical treatment to bare aluminum (A1-F18AC-SRM-500, WP008 00).



Adhesive Compound

12

ac. After cure, fair patches into mold line with EA960F adhesive compound (A1-F18AC-SRM-200, WP011 00).



Sealing Compound

6

ad. Apply sealing compound to trailing edge of repair and any gaps in repair (A1-F18AC-SRM-200, WP011 00).

ae. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

## 24. METAL STRUCTURE.

25. **DAMAGE EVALUATION.** See figures 1 and 2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1.

Repair zones are shown on figure 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits listed below and cold worked holes requires a depot engineering disposition.

26. **ALLOWABLE REPAIR WEIGHTS.** See figure 2. Before starting repair, determine size, weight, and zone of repair. In affected zone, total all previous repair weights recorded on EHR card. Perform a visual inspection of affected zone on aileron for unrecorded repairs. If any unrecorded repairs exist, intermediate maintenance is required to x-ray these repairs to determine size and materials used. A conservative estimate of the net repair weight shall be made and recorded on the EHR card per procedures in (A1-F18AC-SRM-250, WP048 00). Add new repair weight to total of all previous repairs within affected zone. If new total repair weight does not exceed allowable zone repair weight, and no entries on EHR card restrict future repairs within this zone, proceed with repair and enter required information on EHR card per (A1-F18AC-SRM-250, WP048 00). If new total repair weight exceeds allowable zone repair weight, a depot engineering disposition is required. Repair weights of less than 0.050 pounds within all zones need not be recorded on EHR card.

a. For repairs which overlap into more than one repair zone, select the zone that has the most restrictive criteria. When repair is evenly divided between zones, add half of repair weight to each zone. When repair is primarily within one zone all of the repair weight should be added to that zone.

## 27. RIBS.

28. **Negligible Damage.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below.

a. Scratches are not allowed within one diameter from the edge of any hole. Maximum scratch depth of 0.0006 inch.

b. Smooth dents only, effective diameter at least 20 times the depth, 0.016 maximum depth.

c. Unlimited number of nicks and gouges with a maximum depth of 0.0006 inch.

29. **Repairable Damage.** The types and limits of damage are listed below.



## NOTE

The limits given below apply after blending the damage.

## a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth. Maximum scratch depth of 0.006 inch.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth. Minimum damage depth of 0.006 for 4% of area.

30. **REPAIRS.** Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repair type definition are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

## 31. Permanent Repairs.

32. Scratches, Nicks, Gouges, or Corrosion. Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

33. Outboard Rib Repair. See figure 9. The procedure below is for outboard rib flange damage and fastener hole damage repair. Trimming is typical for upper or lower flange. Repair weight is shown in figure.

## Support Equipment Required

None

## Materials Required

Nomenclature	Specification or Part Number
7075-0 Alclad 0.050 Sheet (for Closure Rib)	QQ-A-250/13
7075-T6 Alclad 0.050 Sheet (for Strap and Repair Spacer)	QQ-A-250/13
Rivet, Solid (5 required per repair)	MS20470AD4

## Materials Required (Continued)

Nomenclature	Specification or Part Number
Rivet, Solid (2 required per repair)	NAS1398C4
Sealing Compound	MIL-S-83430

a. Do NDI to determine amount and type of damage (A1-F18AC-SRM-300, WP008 02).

b. Drill out fasteners and remove forward rib, view A.

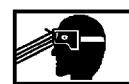
c. Fabricate replacement rib from 0.050 inch aluminum sheet, view E. Heat treat replacement rib to T6 condition (A1-F18AC-SRM-200, WP004 11).

d. Trim aft rib flange, view A.

e. Fabricate repair spacer and strap from 0.050 inch aluminum sheet, views B and C. Repair spacer to fit in trimmed flange area.



Sealing Compound



6

f. Lay surface seal between repair spacer, strap, existing spacer, and new rib. Install repair spacer, existing spacer, and strap with rivets using squeezing method, views B, C, and D (A1-F18AC-SRM-200, WP004 06). Install rivets wet with sealing compound (A1-F18AC-SRM-200, WP011 00).

g. Do chemical treatment to bare aluminum (A1-F18AC-SRM-500, WP008 00).

h. Apply sealing compound to any gap in repair (A1-F18AC-SRM-200, WP011 00).

i. Install outer tip fairing per Replacement, Fairing-Outer Tip Aileron (74A170758), this work package.

j. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

34. **PLATES.** Damage to the plates requires a depot engineering disposition.

35. **SPAR.** Damage to the spar requires a depot engineering disposition.

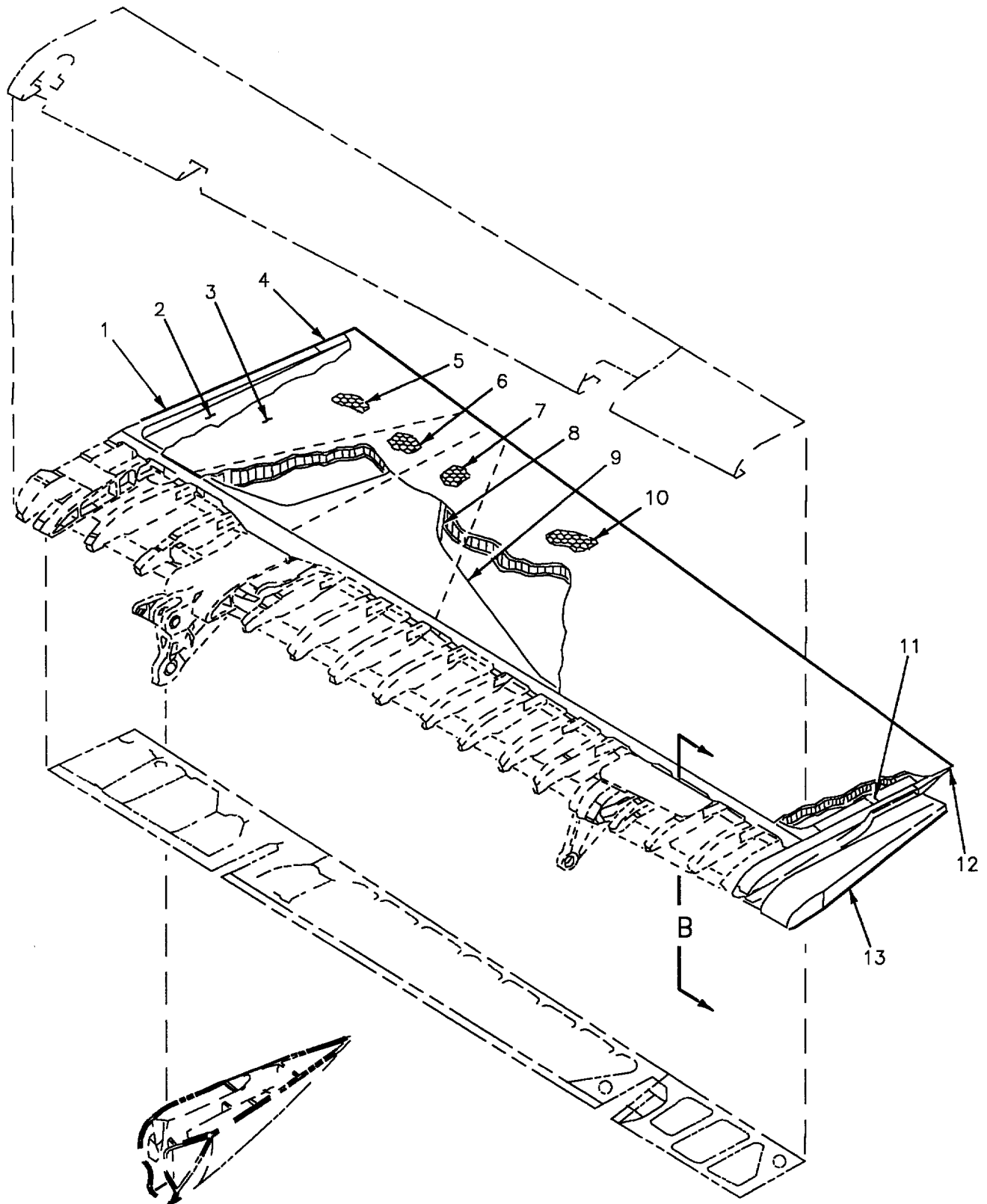


Figure 1. Material Index (Sheet 1)

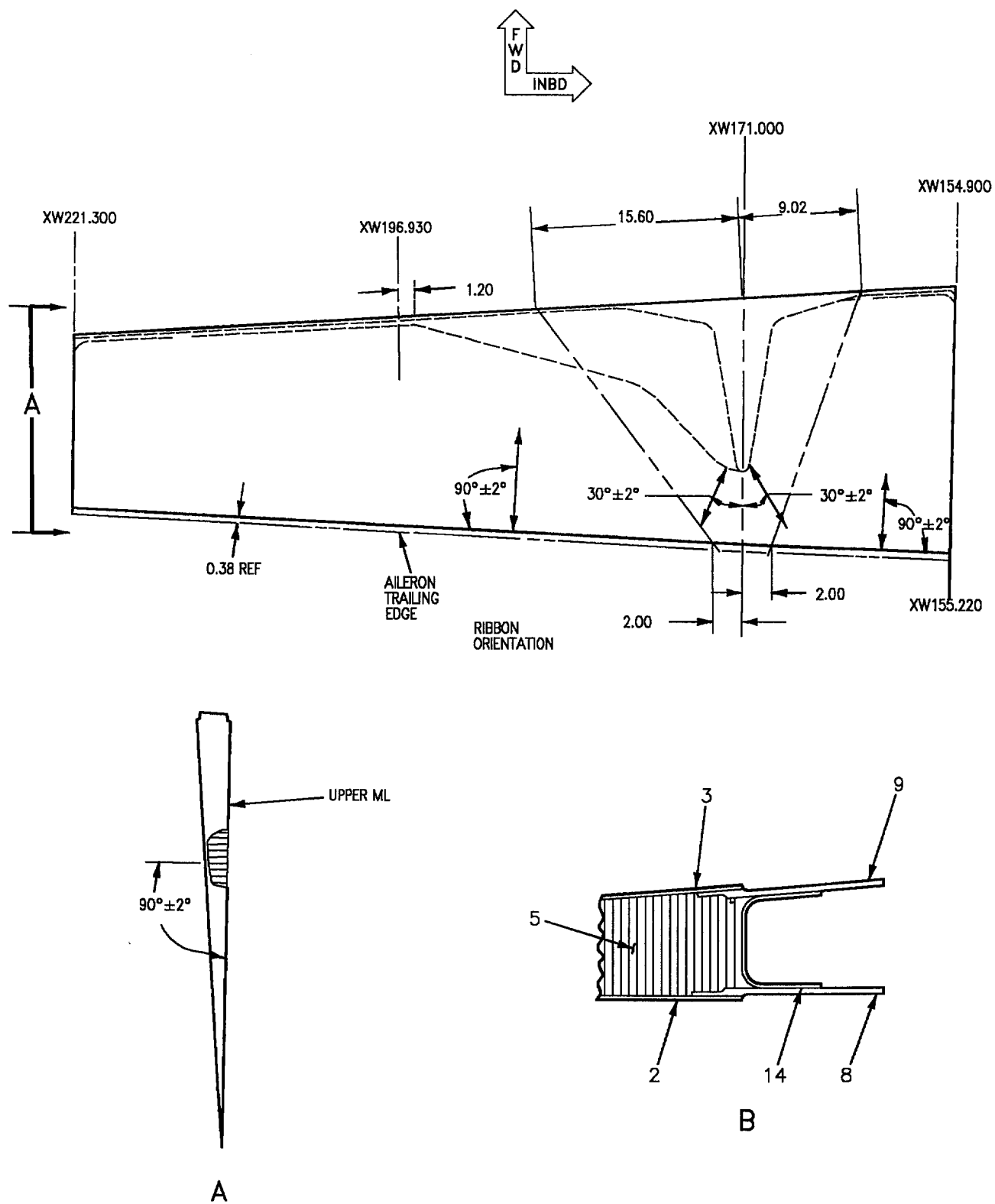
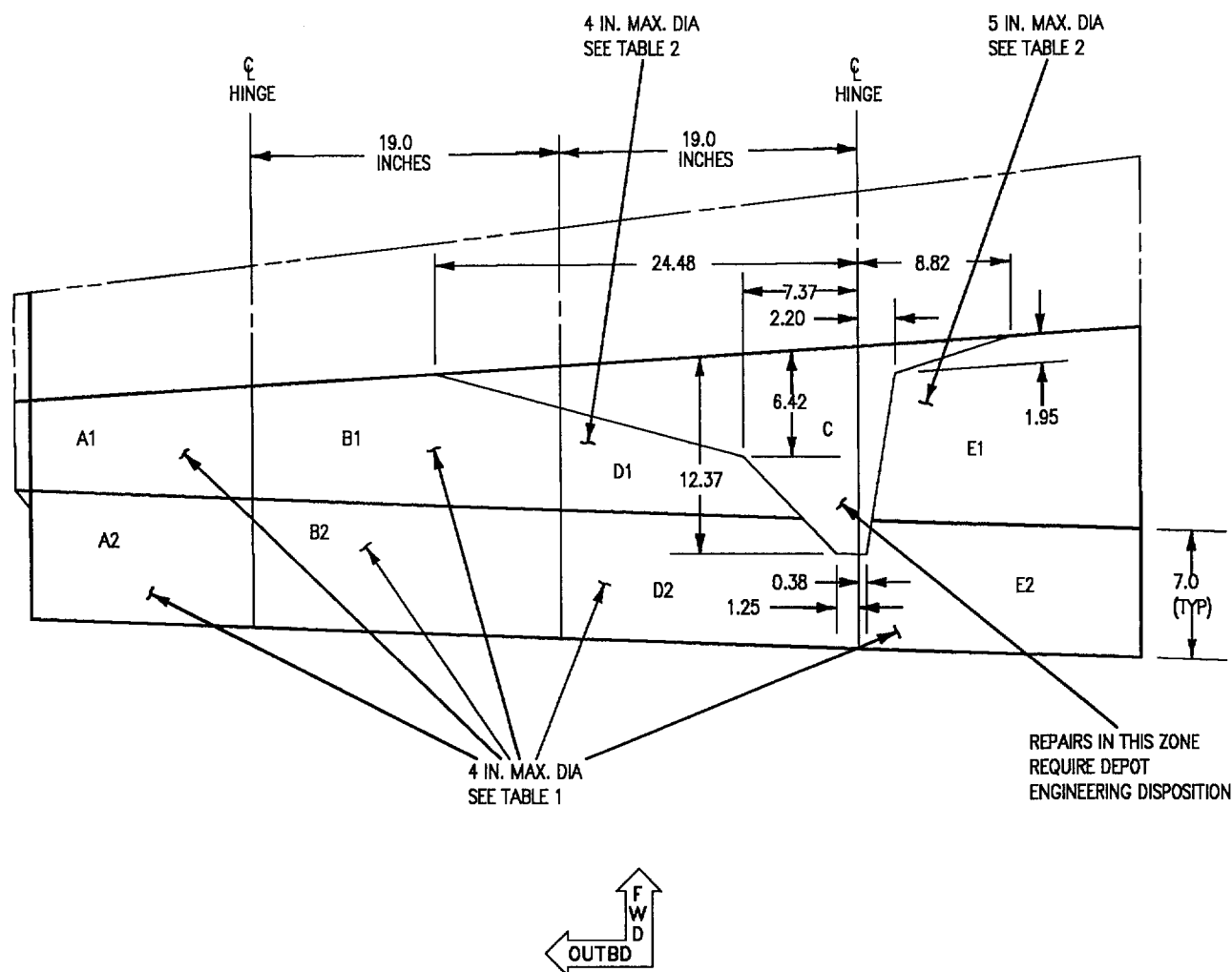


Figure 1. Material Index (Sheet 2)

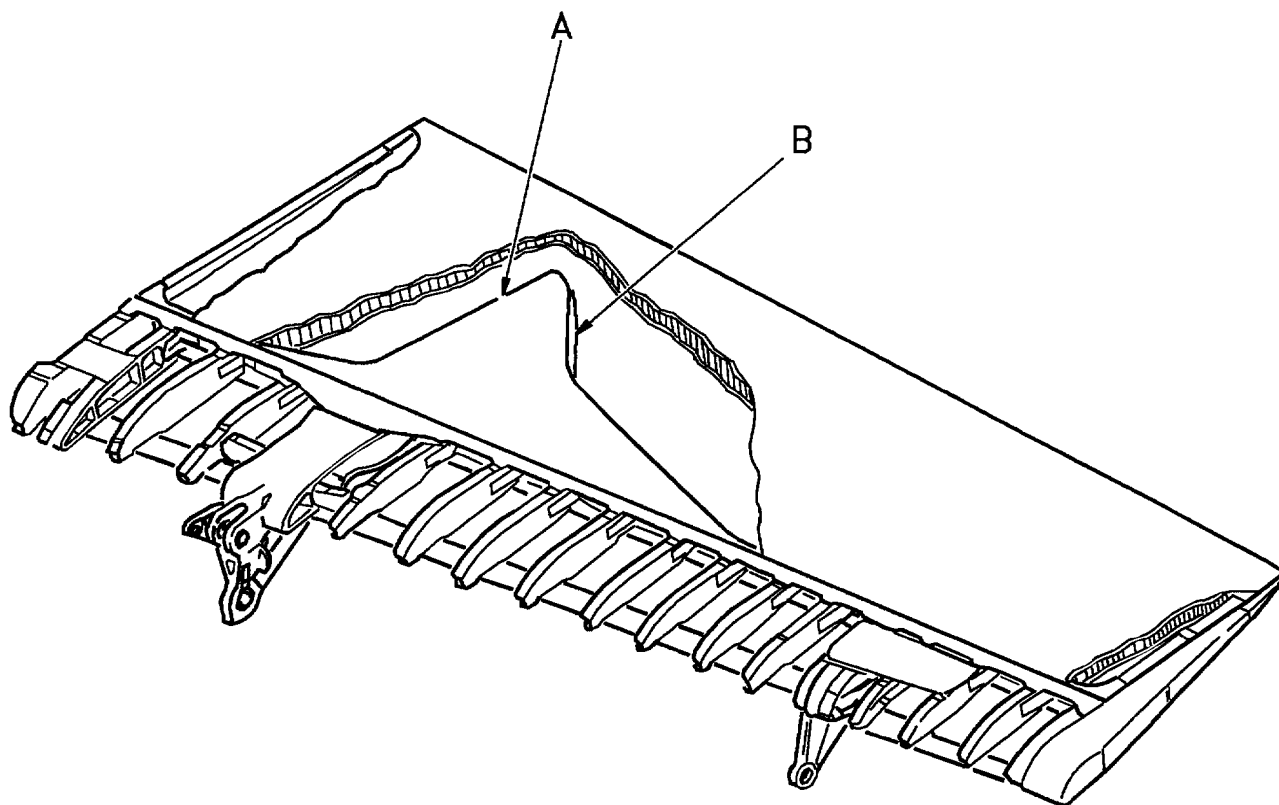
Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Rib 74A170726-2001, -2002	0.032 Sheet	7075-T6 Alclad
2		Skin 74A170740-2003, -2004	0.012 Sheet	7075-T6 Alclad
3		Skin 74A170740-2001, -2002	0.012 Sheet	7075-T6 Alclad
4		Arrowhead 74A170633-2005, -2006	1 Molding	Epoxy Fiberglass
5		Core 74A170724-2001, -2002	2 1.75 Sheet	3 5056-H39 Al Aly
6		Core 74A170724-2003, -2004	2 1.75 Sheet	4 5056-H39 Al Aly
7		Core 74A170724-2005, -2006	2 1.75 Sheet	4 5056-H39 Al Aly
8		Plate 74A170728-2001, -2002	0.190 Sheet	7075-T76 Al Aly
9		Plate 74A170738-2001, -2002	0.160 Sheet	7075-T76 Al Aly
10		Core 74A170724-2007, -2008	2 1.75 Sheet	5 5056-H39 Al Aly
11		Rib 74A170727-2001, -2002	0.032 Sheet	7075-T6 Alclad
12		Arrowhead 74A170633-2007, -2008	1 Molding	Epoxy Fiberglass
13		Fairing 74A170758-2003, -2004	Molded	Polyester Thermoplastic
14		Spar 74A170725-2001, -2002	6 0.063 Sheet	7075-T6 Alclad
<p style="text-align: center;"><b>LEGEND</b></p> <p>1 Molded laminated fiberglass.</p> <p>2 Honeycomb core, skins, ribs, plates, and spar are bonded to integral assembly.</p> <p>3 5/32 X 0.0010 nonperforated honeycomb.</p> <p>4 1/8 X 0.0015 nonperforated honeycomb.</p> <p>5 3/16 X 0.0010 nonperforated honeycomb.</p> <p>6 Web machined to 0.23.</p>				

Figure 1. Material Index (Sheet 3)



ALLOWABLE REPAIR WEIGHTS	
ZONE	WEIGHT (LB)
A1 + A2	0.5
B1 + B2	0.5
D1 + D2	0.5
E1 + E2	0.5

Figure 2. Repair Zones (Sheet 1)



## LEGEND

INDEX	TYPE OF COLD WORKED HOLES	HOLE DIAMETER	EFFECTIVITY
1	I	$0.1990+0.0030-0.0000$	
2	I	$0.1645+0.0030-0.0000$	

10010202

Figure 2. Repair Zones (Sheet 2)

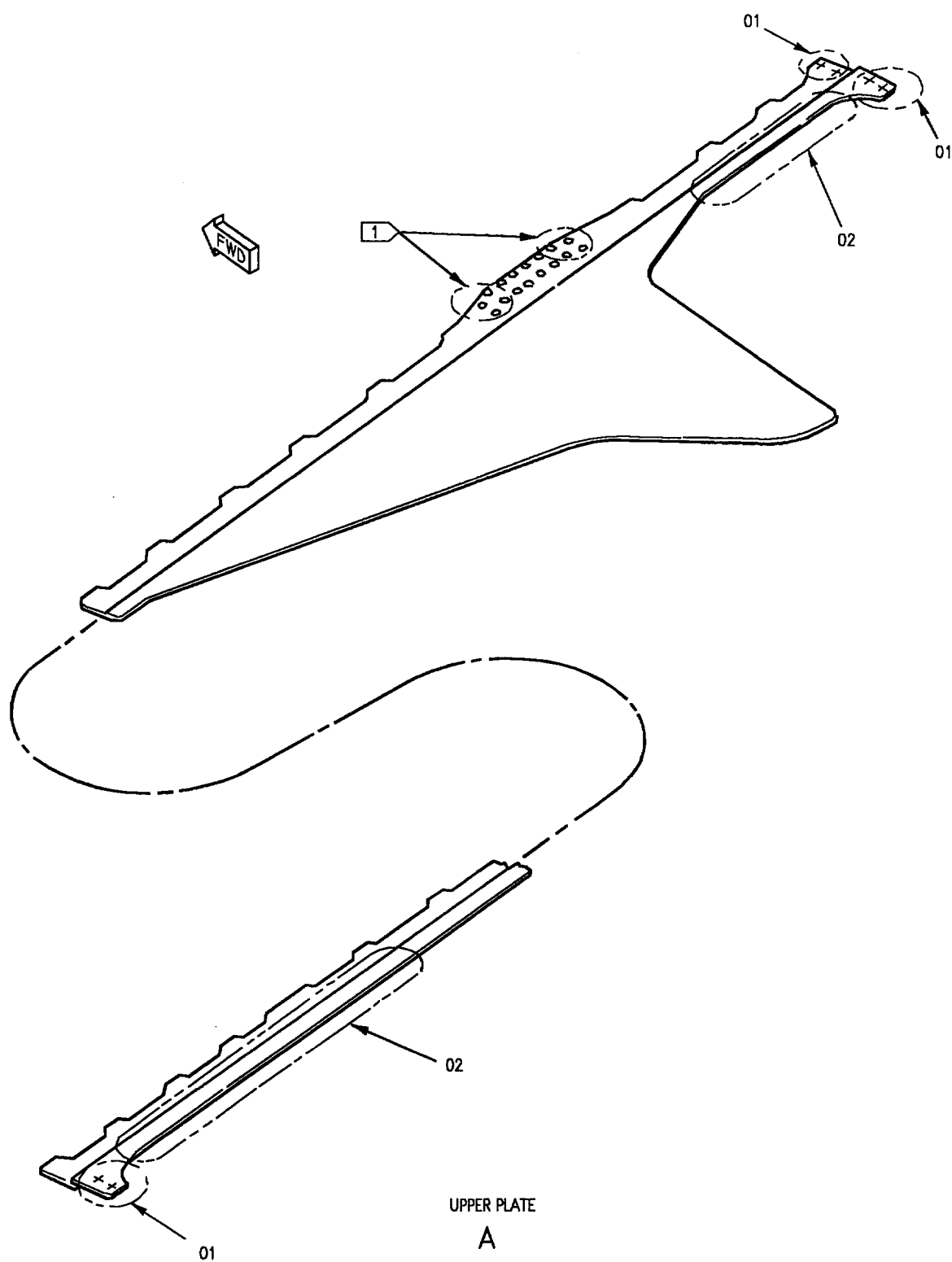


Figure 2. Repair Zones (Sheet 3)

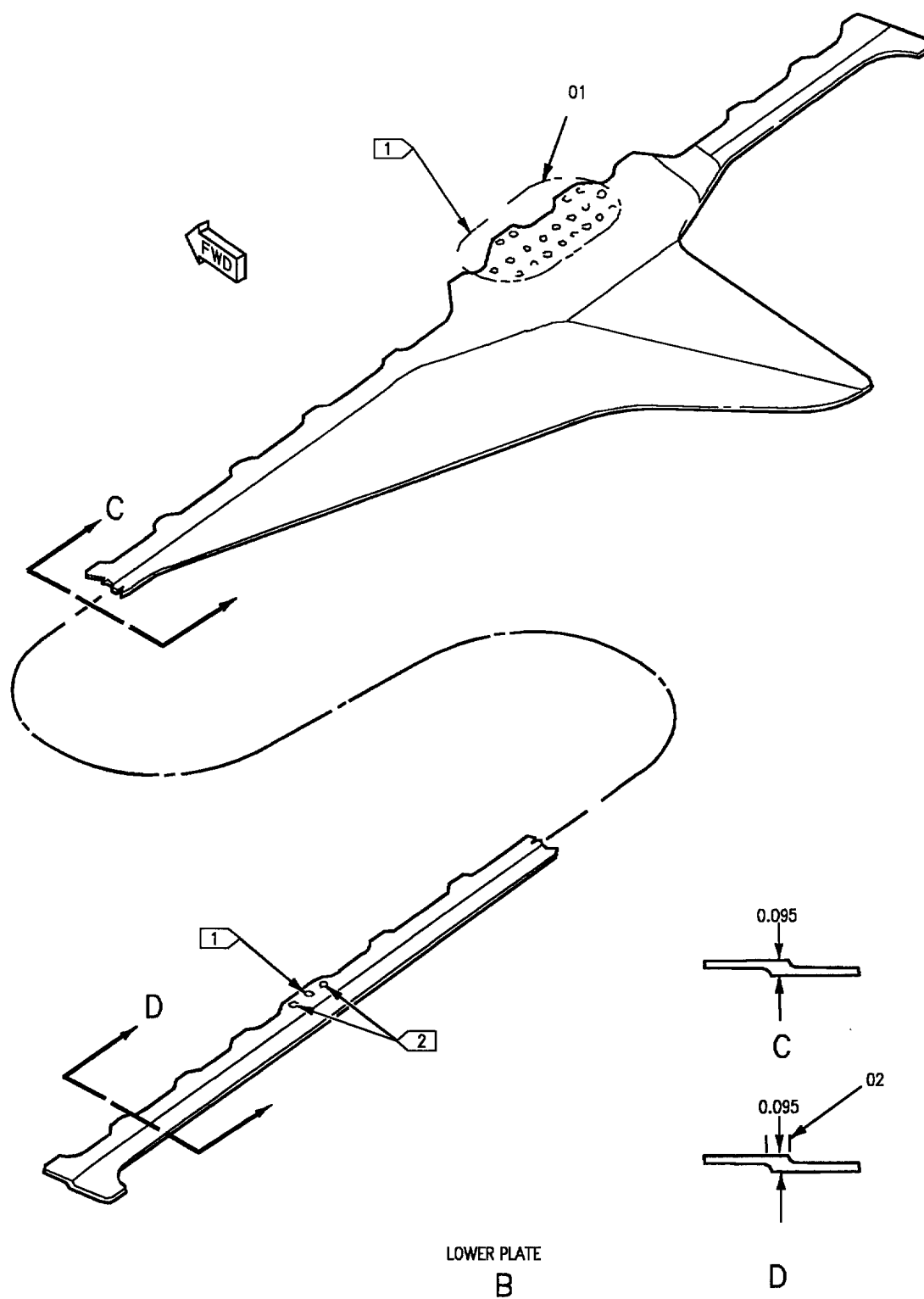
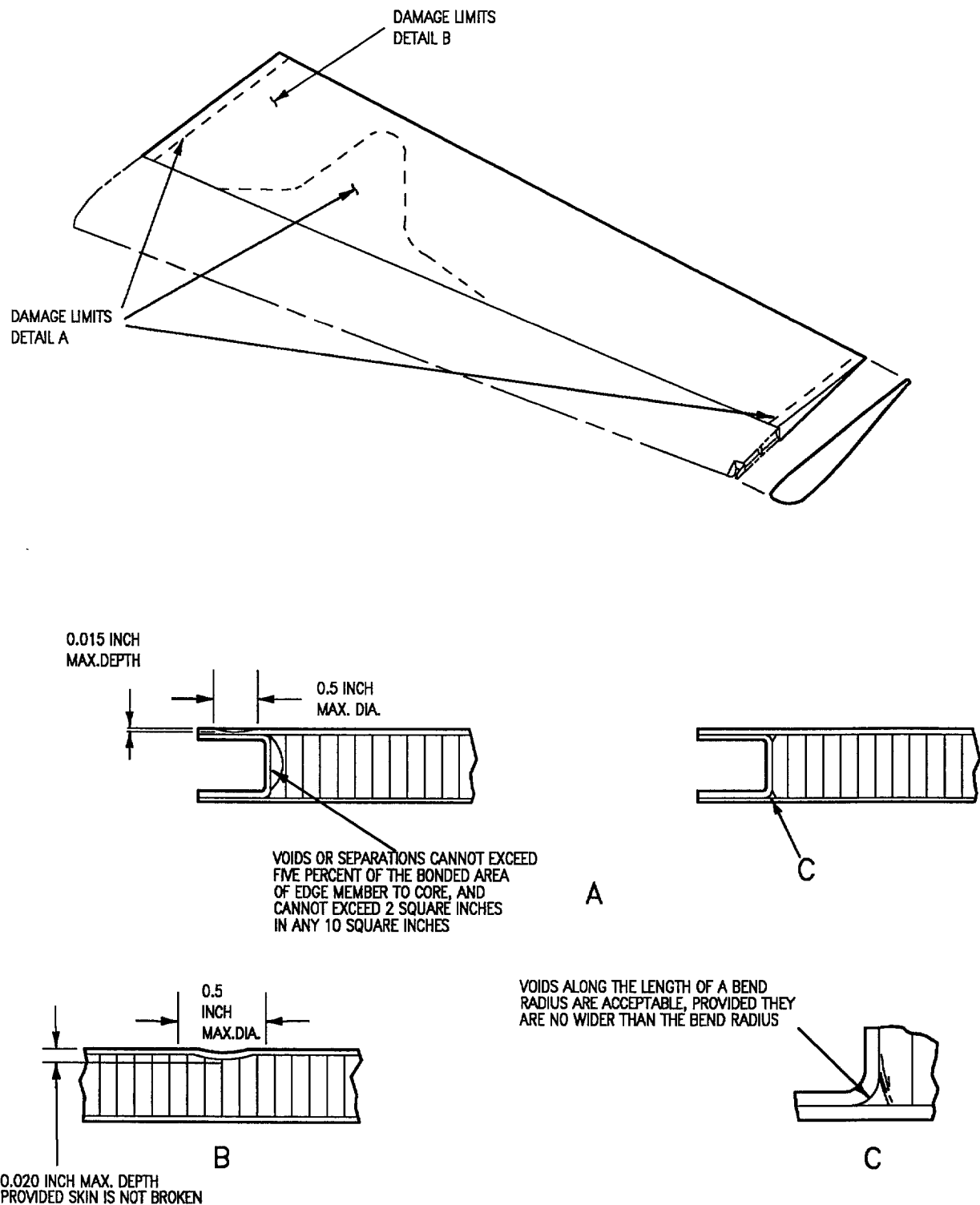


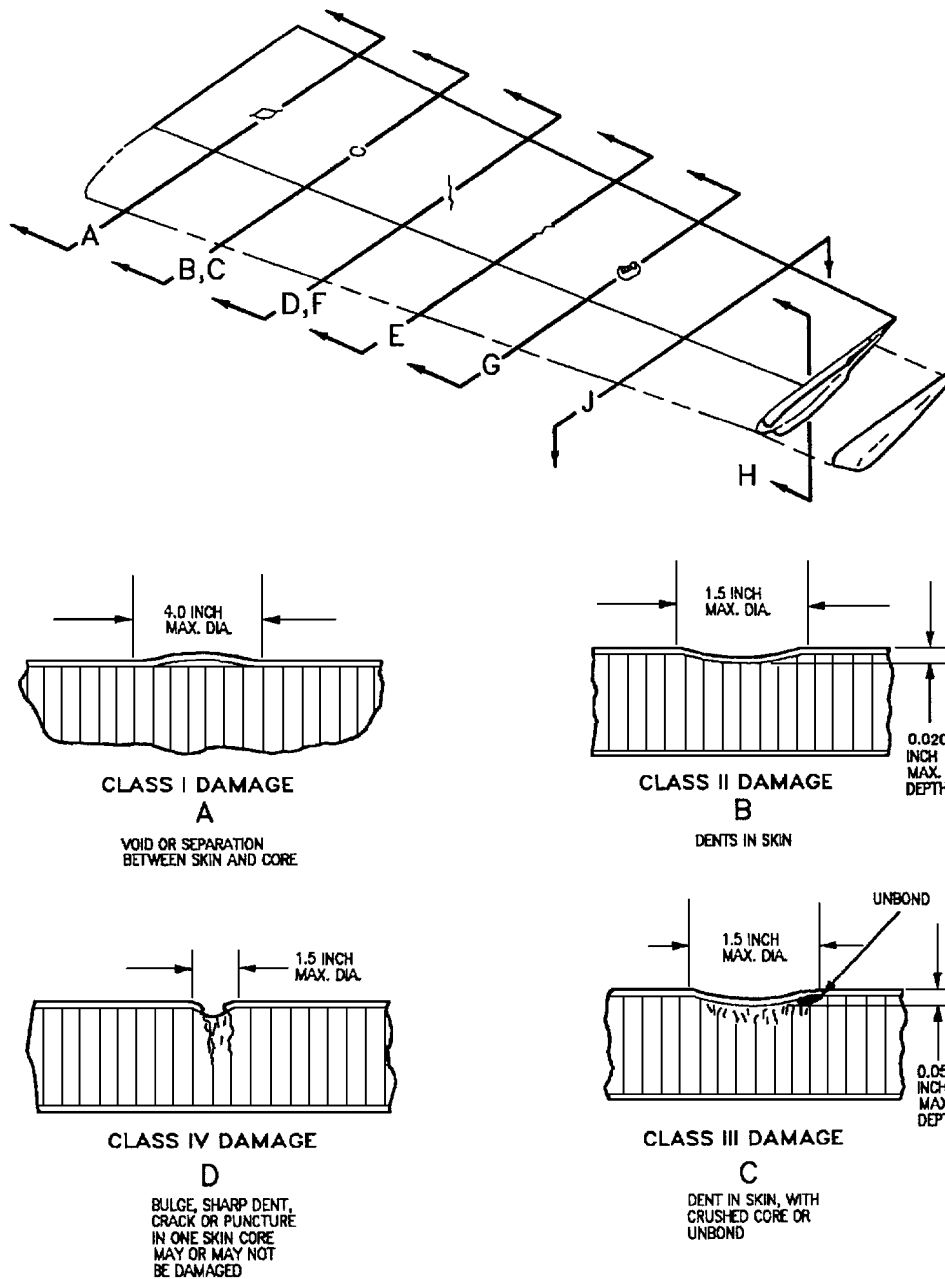
Figure 2. Repair Zones (Sheet 4)





01001003

Figure 3. Negligible Damage, Aluminum Skin and Aluminum Honeycomb Core



10010401

Figure 4. Repairable Damage, Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 1)

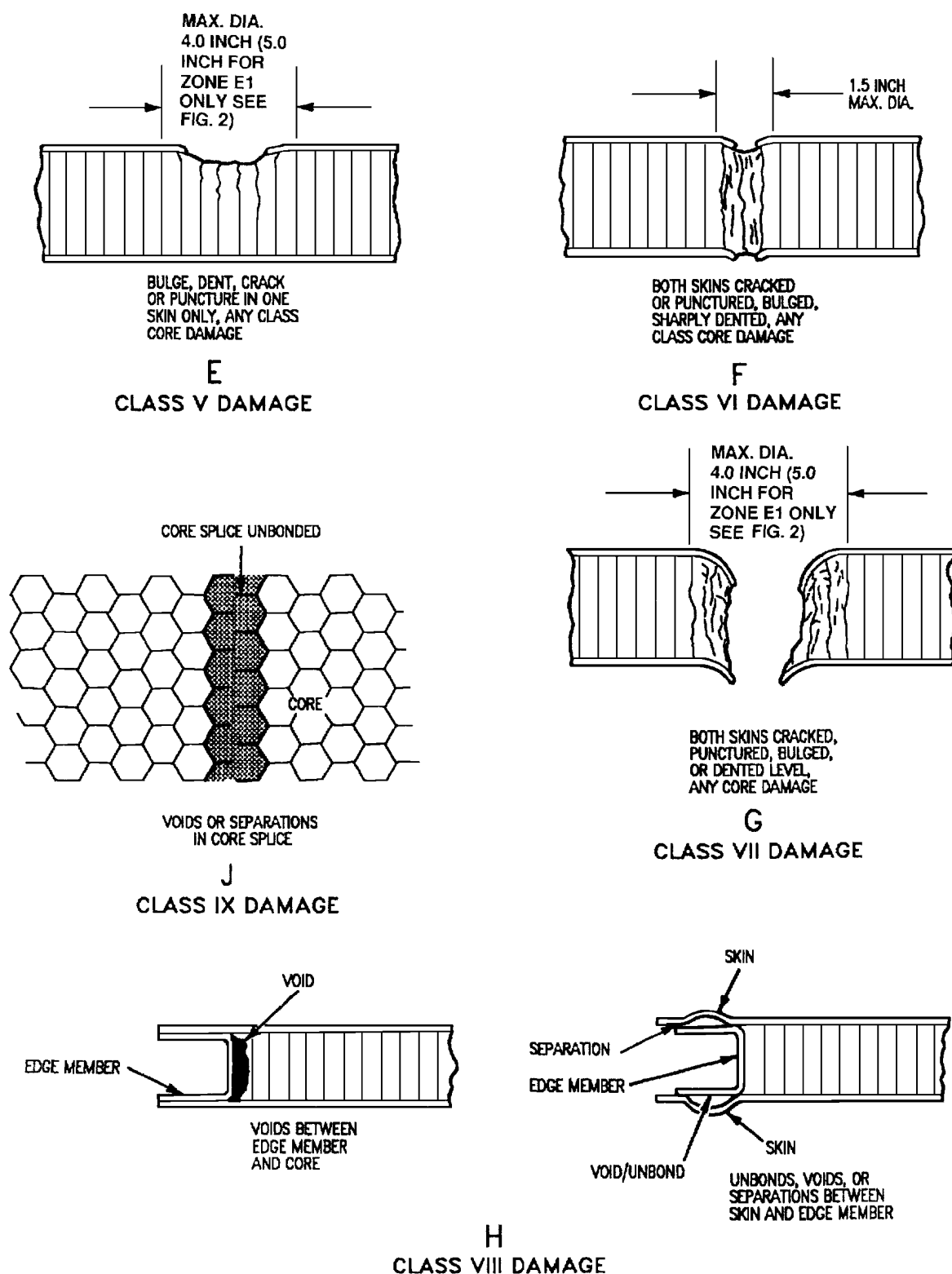


Figure 4. Repairable Damage, Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 2)

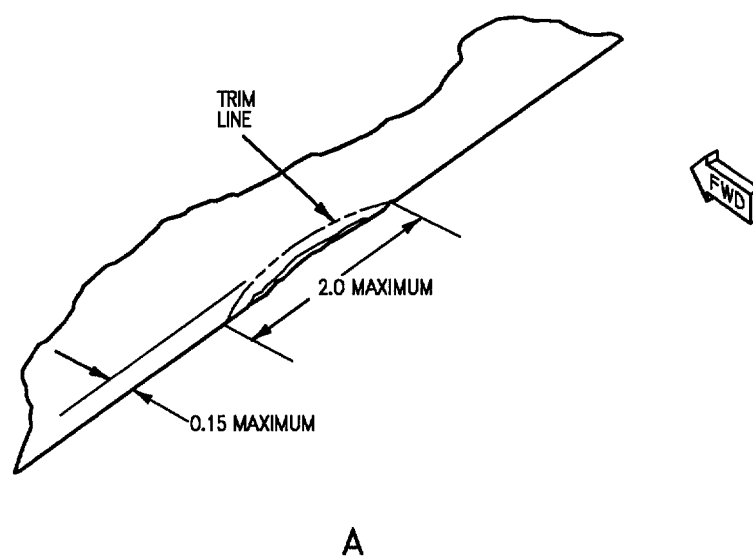
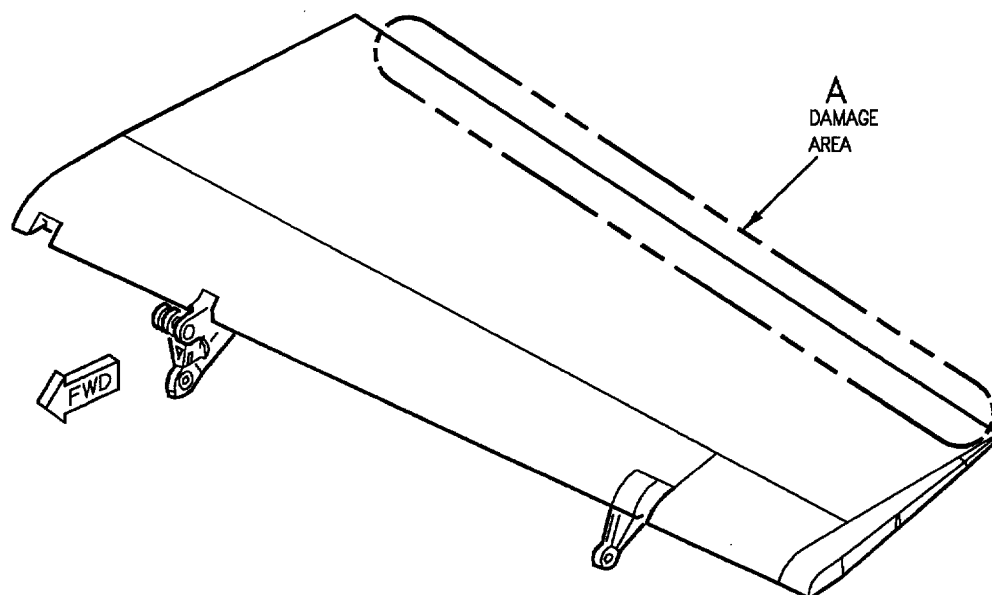
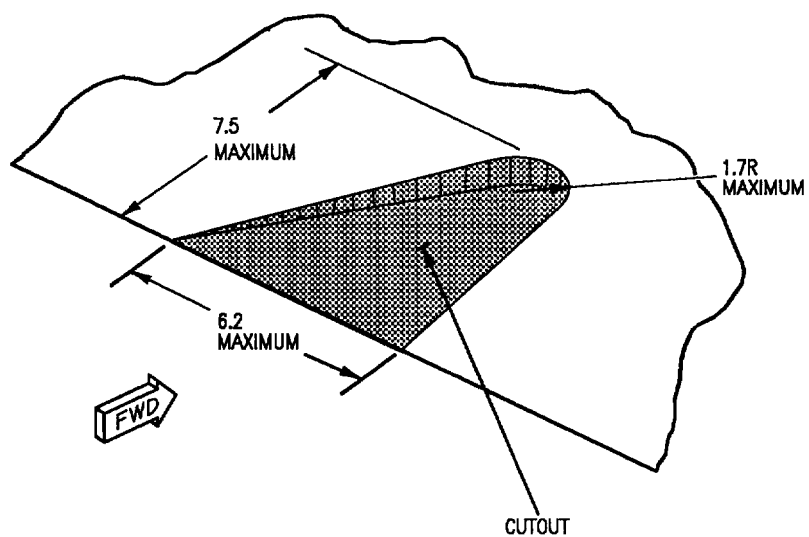
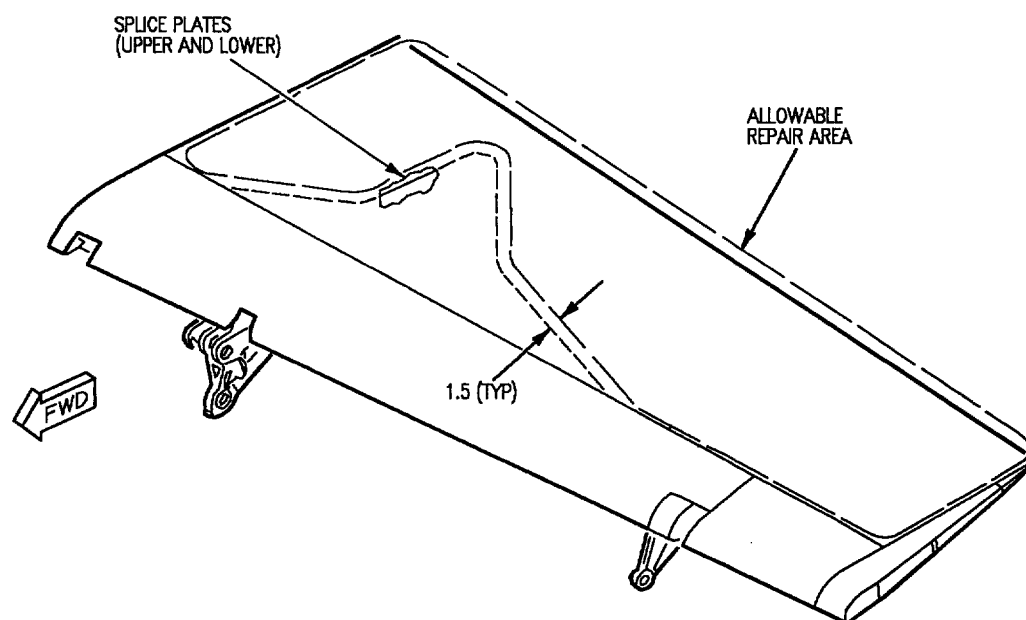


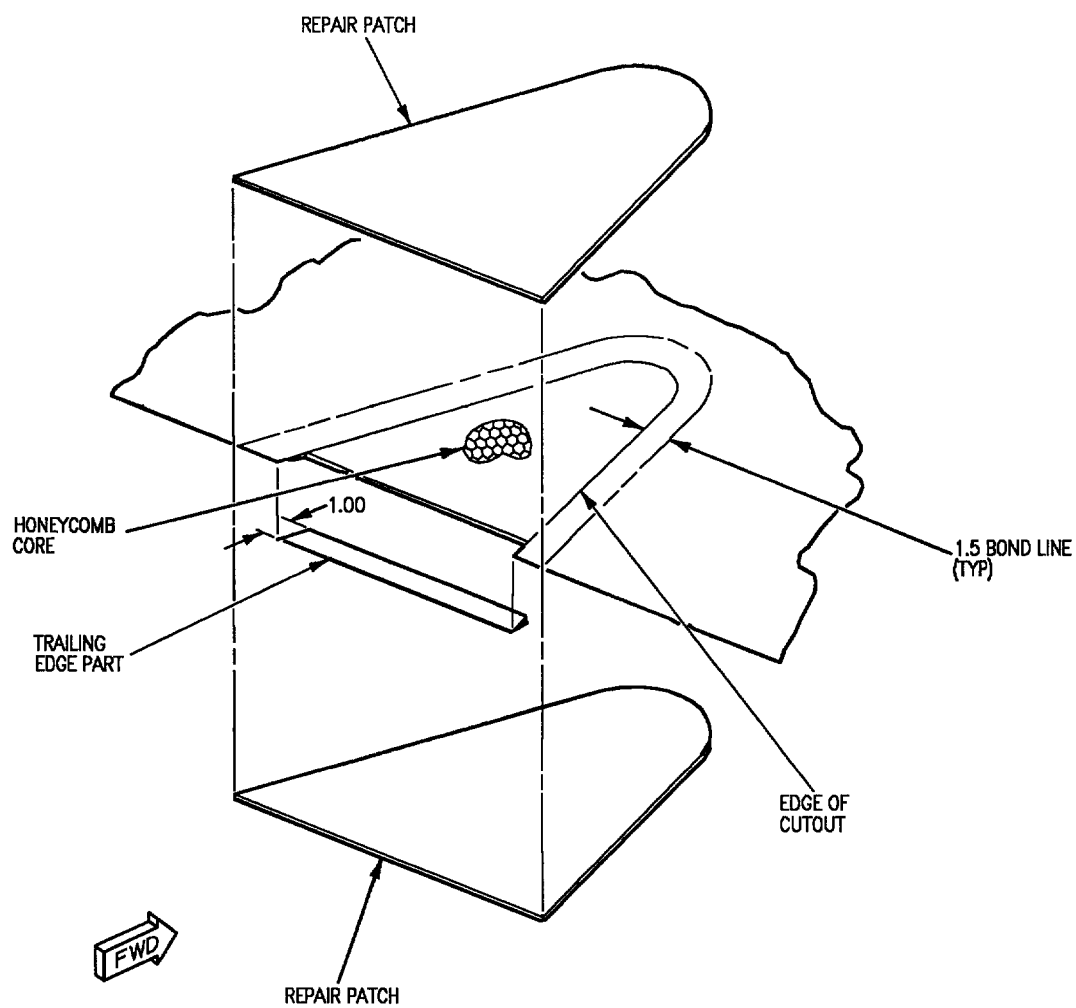
Figure 5. Trailing Edge Minor Damage Repair



A

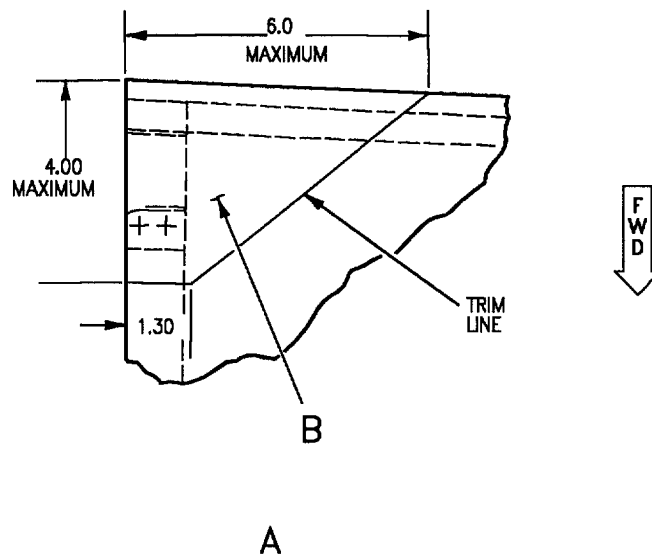
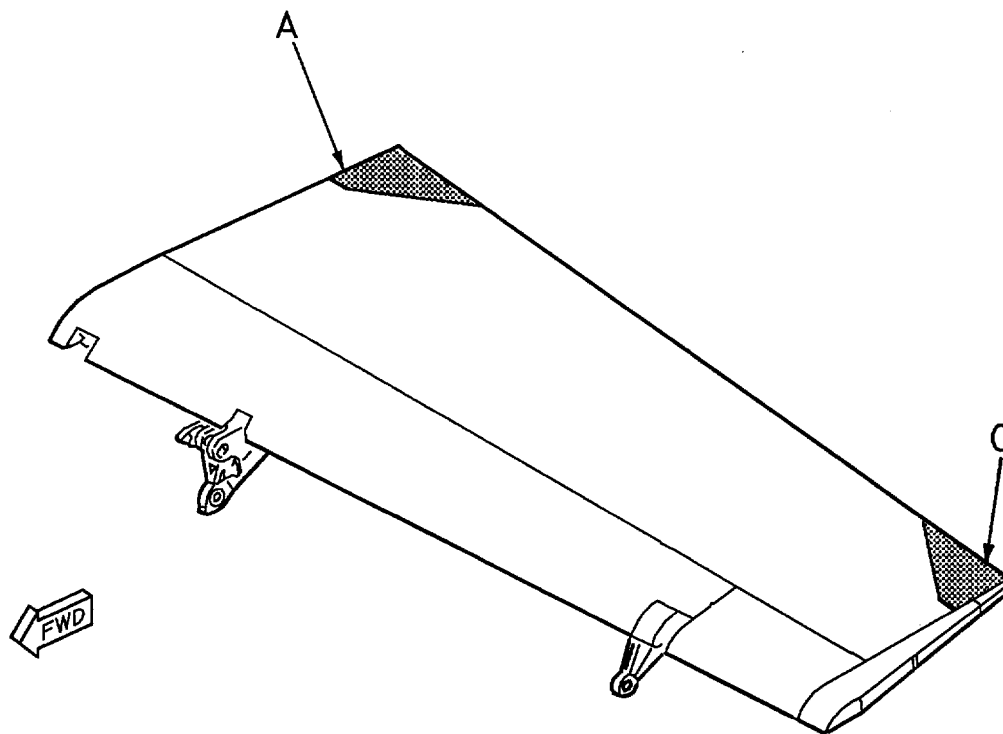
REPAIR WEIGHT=0.35 LB

Figure 6. Trailing Edge Skin and Core Repair (Sheet 1)



B

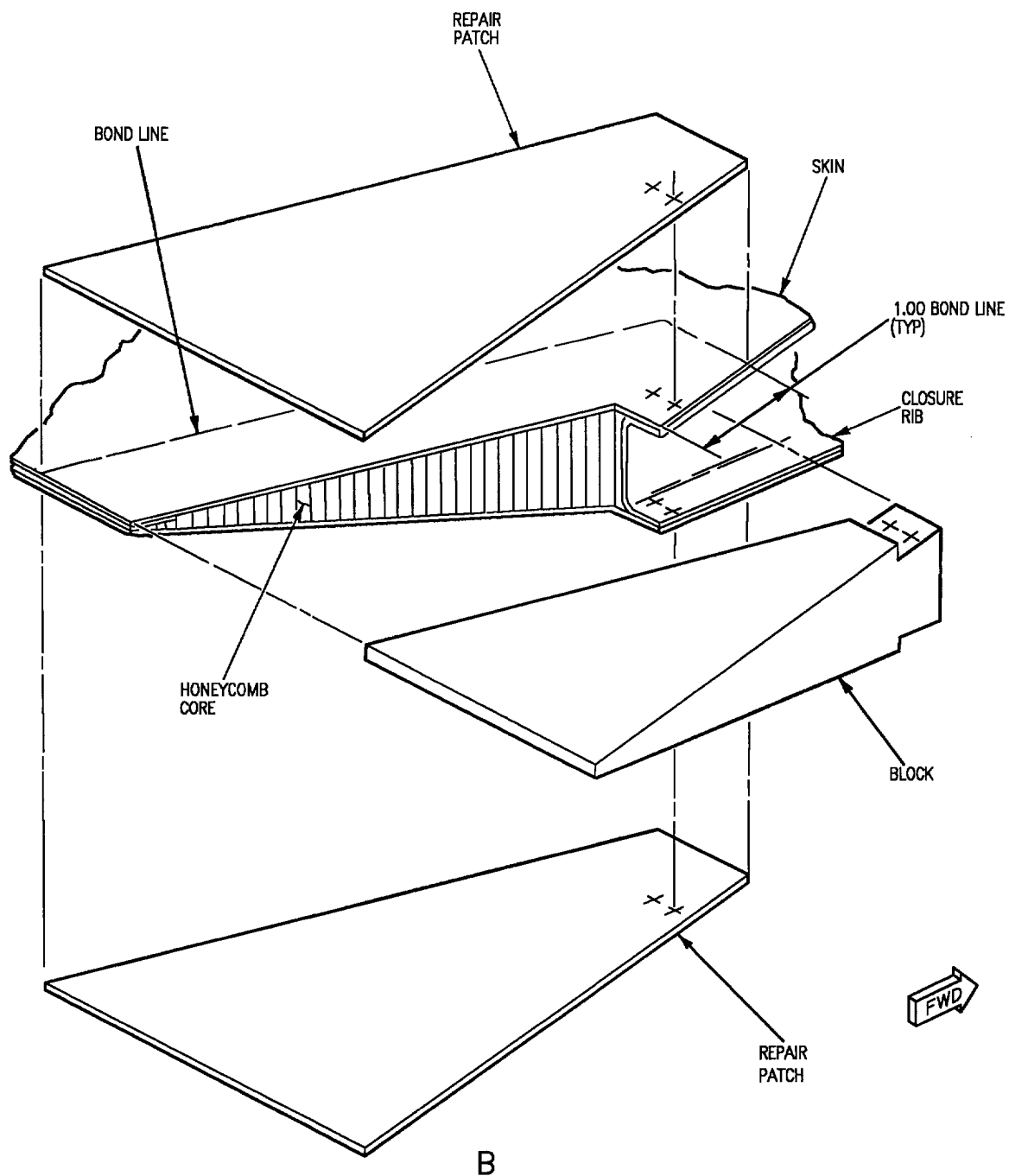
Figure 6. Trailing Edge Skin and Core Repair (Sheet 2)



REPAIR WEIGHT=0.22 LB

10010701

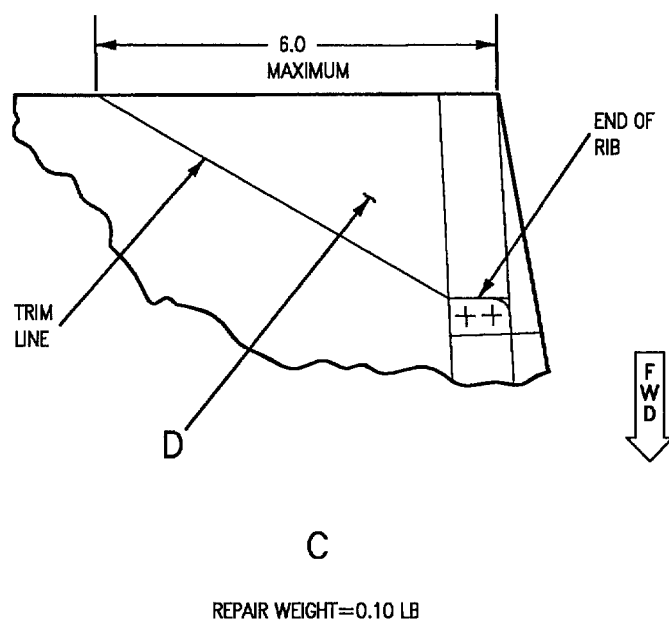
Figure 7. Trailing Edge Inboard or Outboard Corner Repair Without Rib Fabrication  
(Sheet 1)



10010702

Figure 7. Trailing Edge Inboard or Outboard Corner Repair Without Rib Fabrication  
(Sheet 2)





10010703

Figure 7. Trailing Edge Inboard or Outboard Corner Repair Without Rib Fabrication  
(Sheet 3)

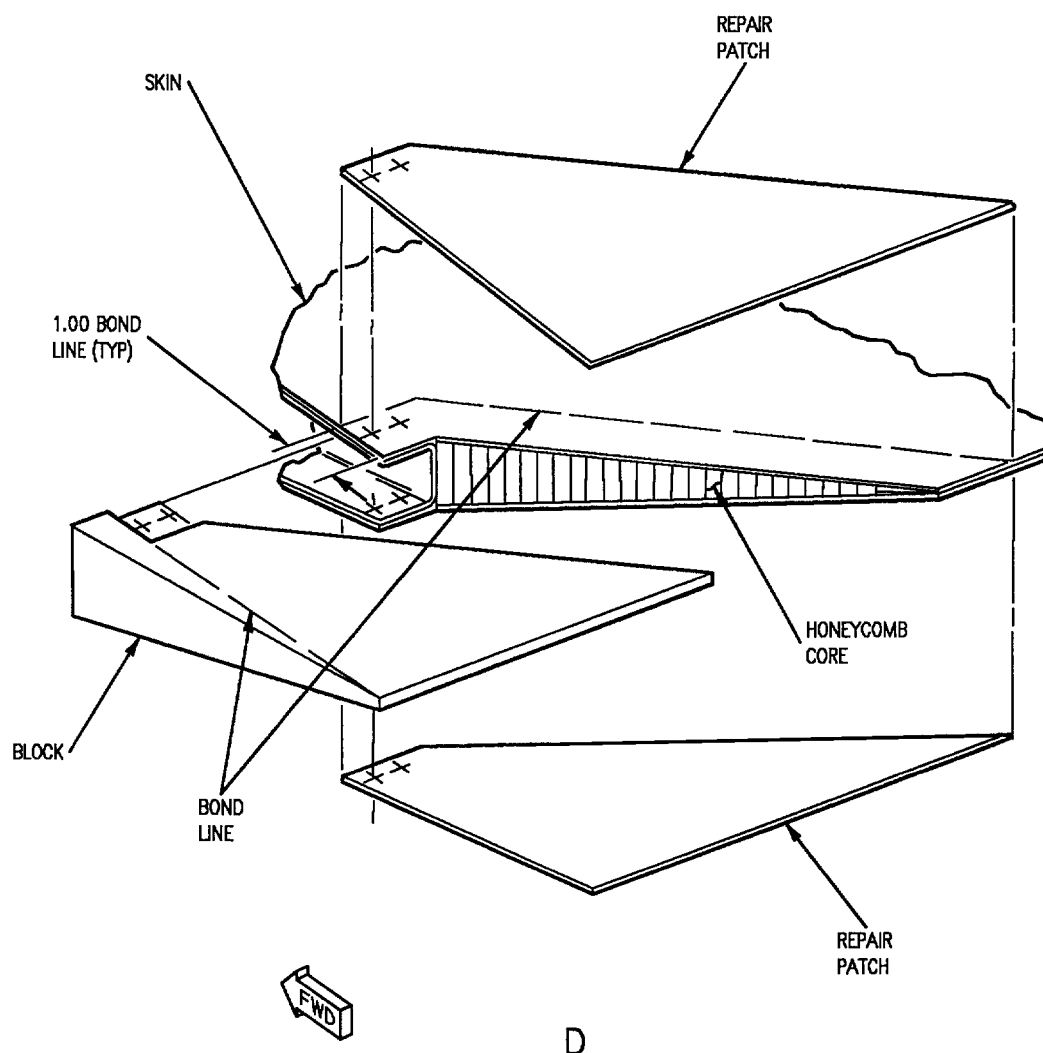


Figure 7. Trailing Edge Inboard or Outboard Corner Repair Without Rib Fabrication  
(Sheet 4)

10010704

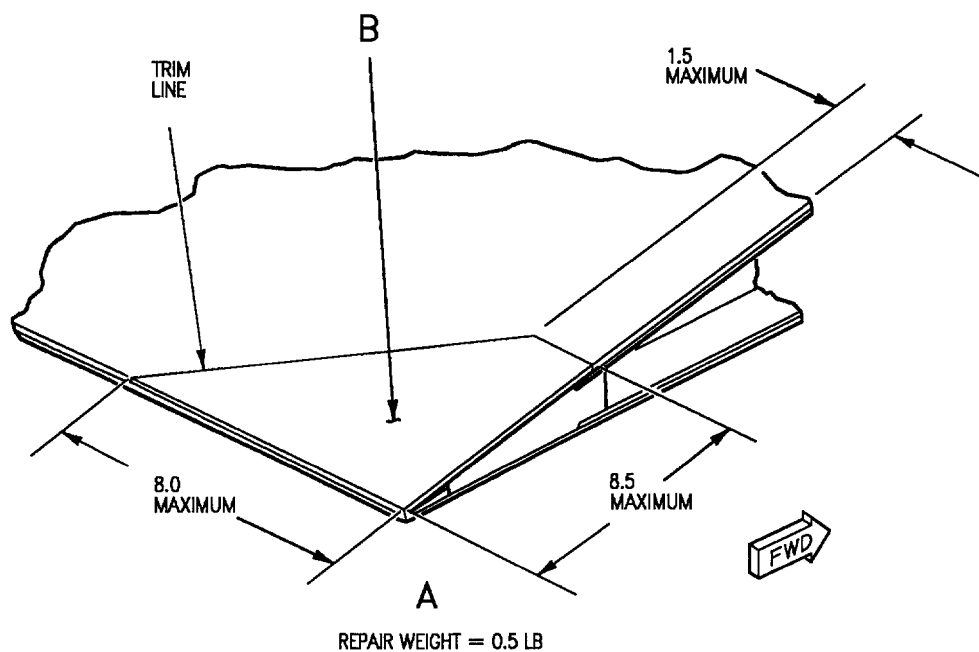
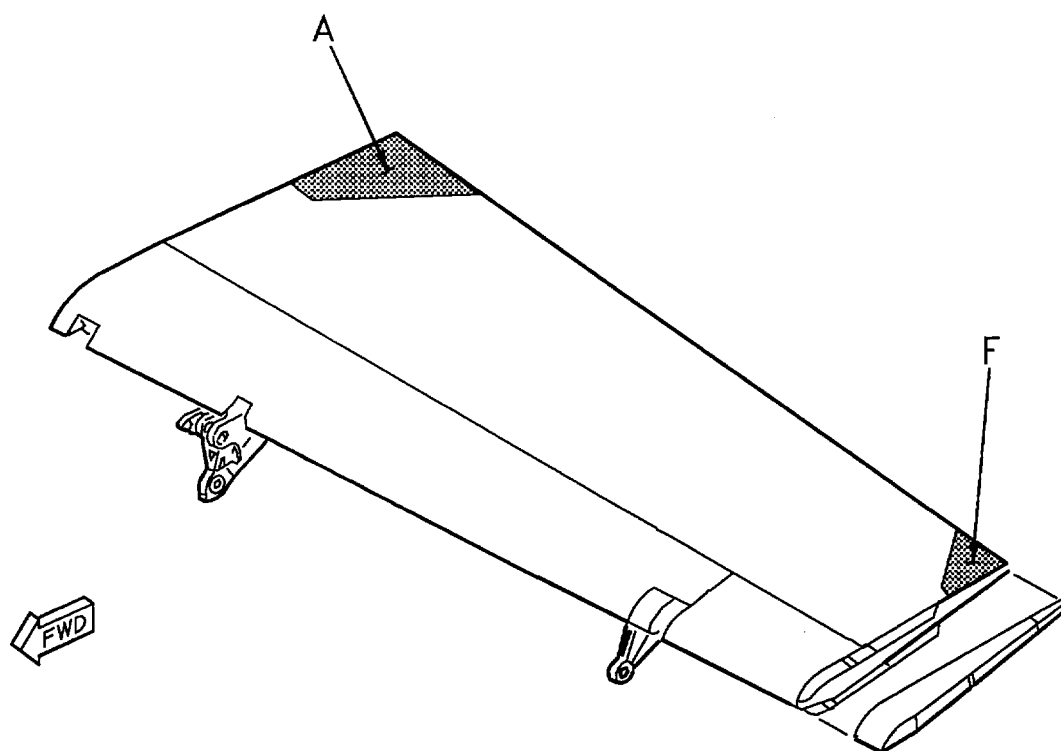


Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 1)

10010801

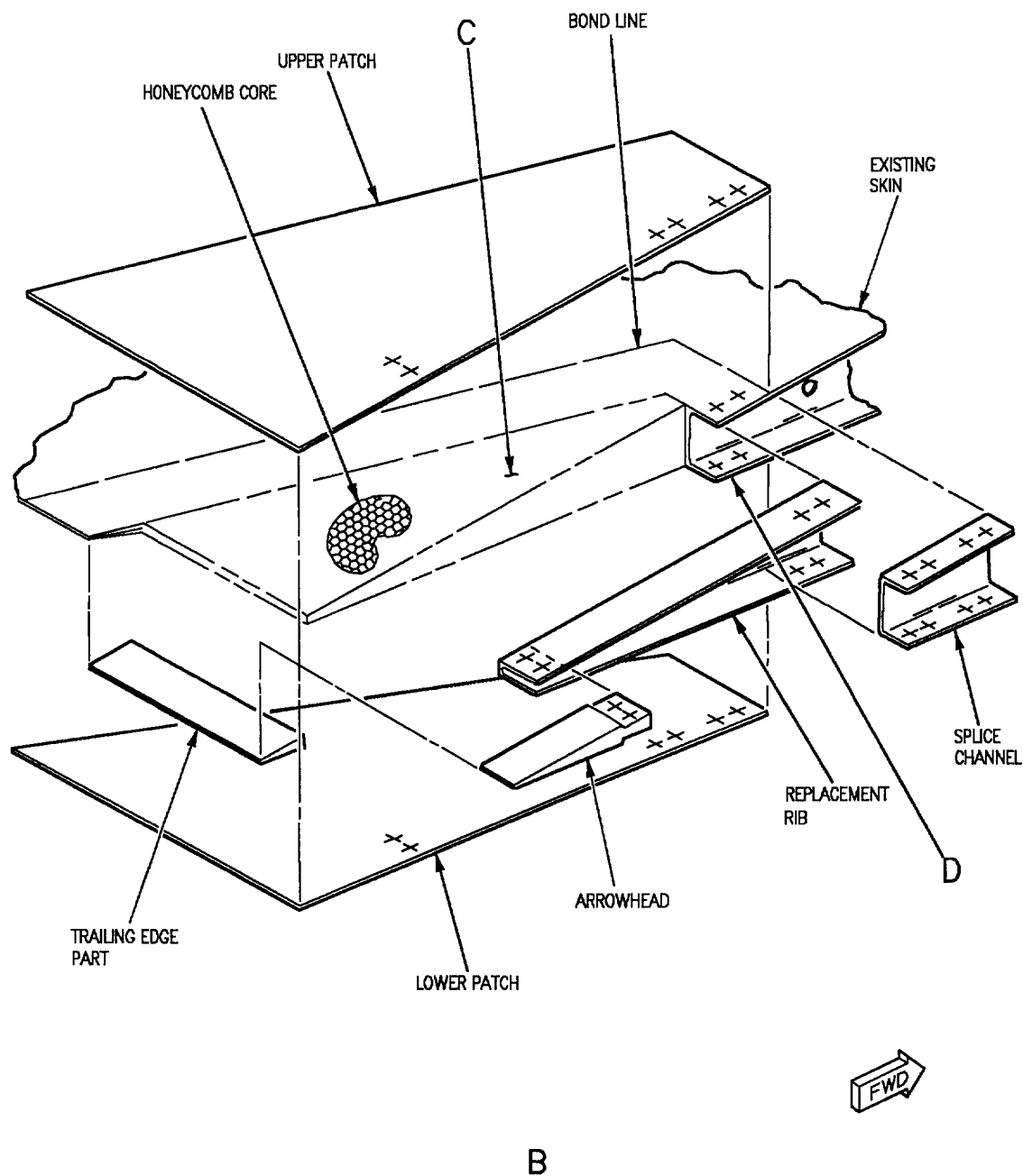


Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 2)

10010802

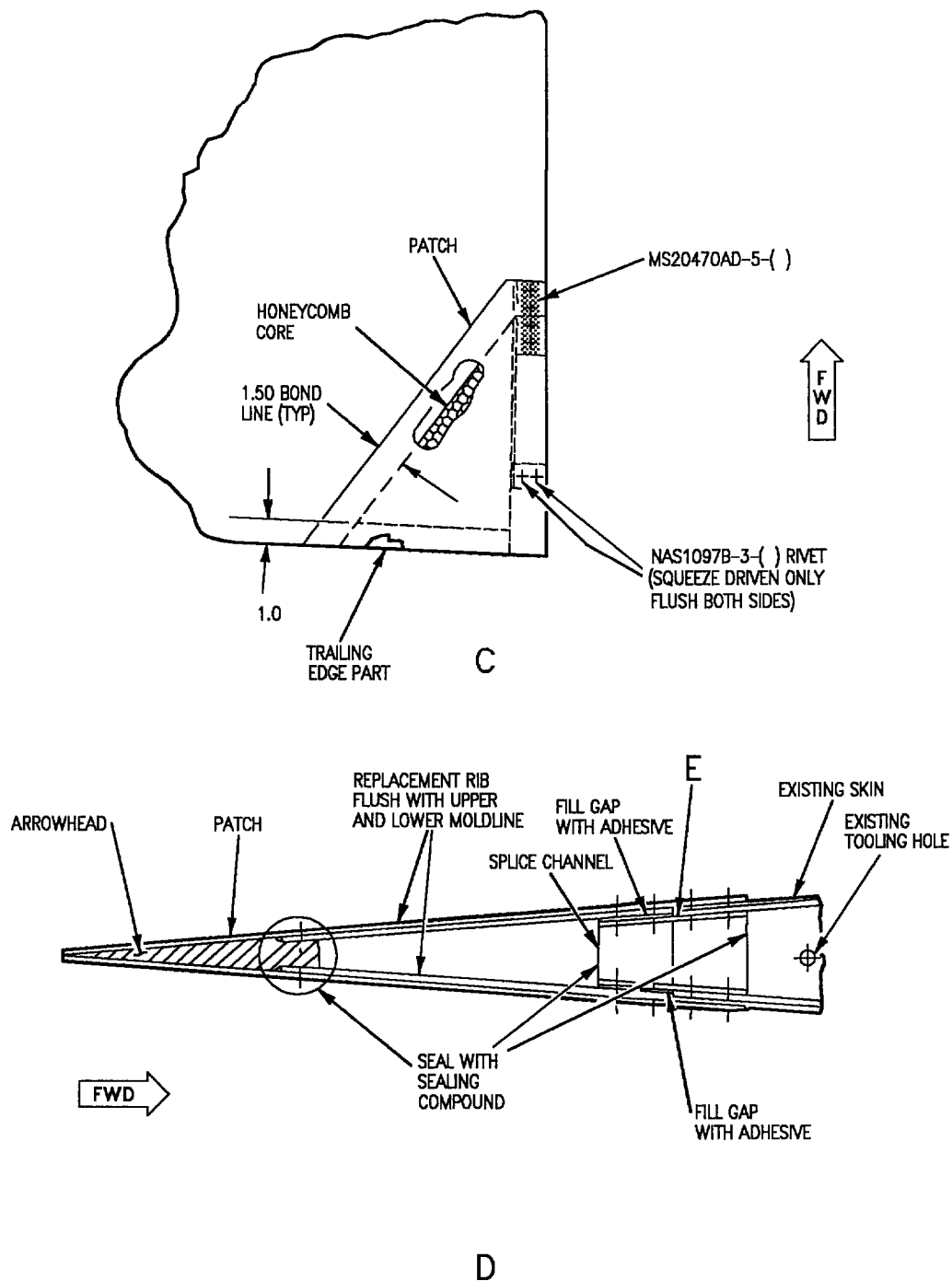
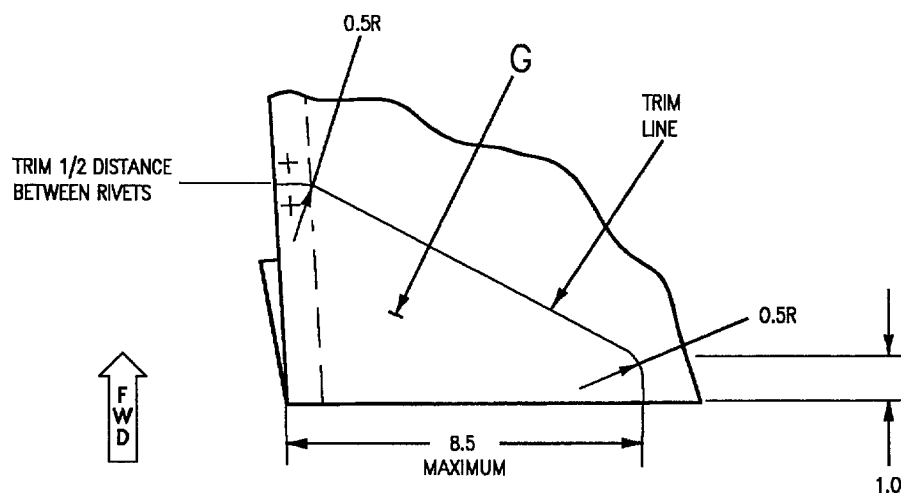
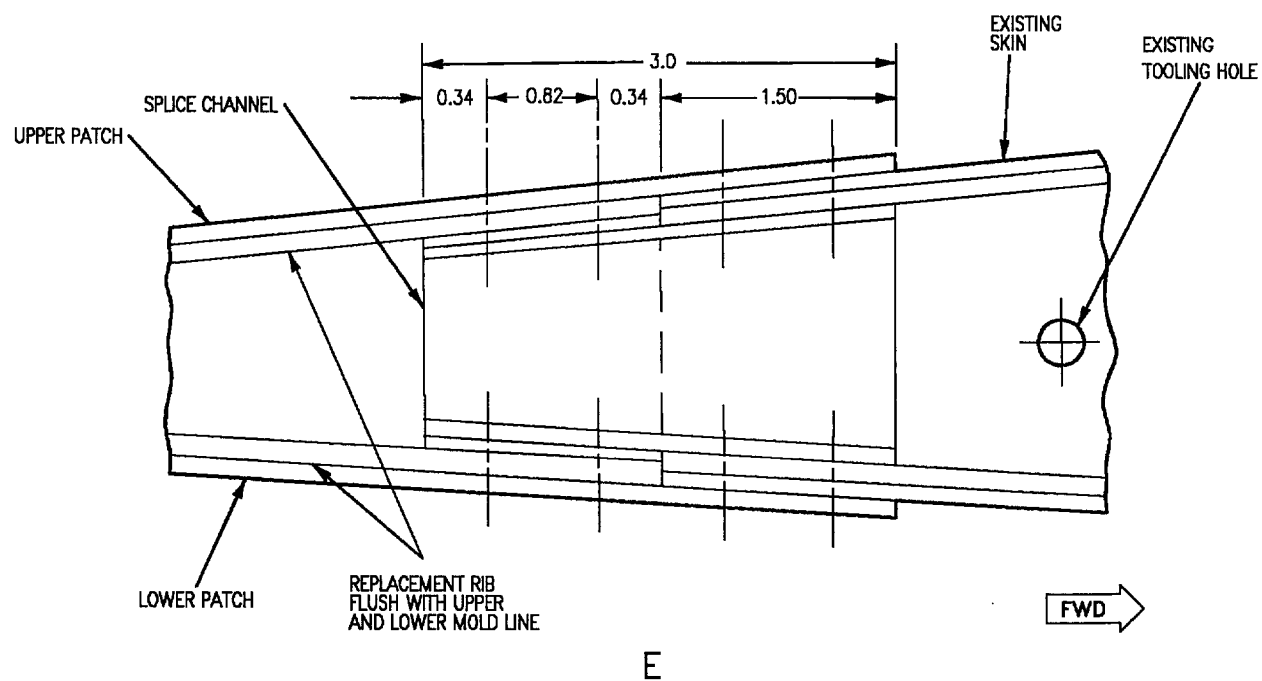


Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 3)

10010803



REPAIR WEIGHT = 0.35 LB

10010804

Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 4)

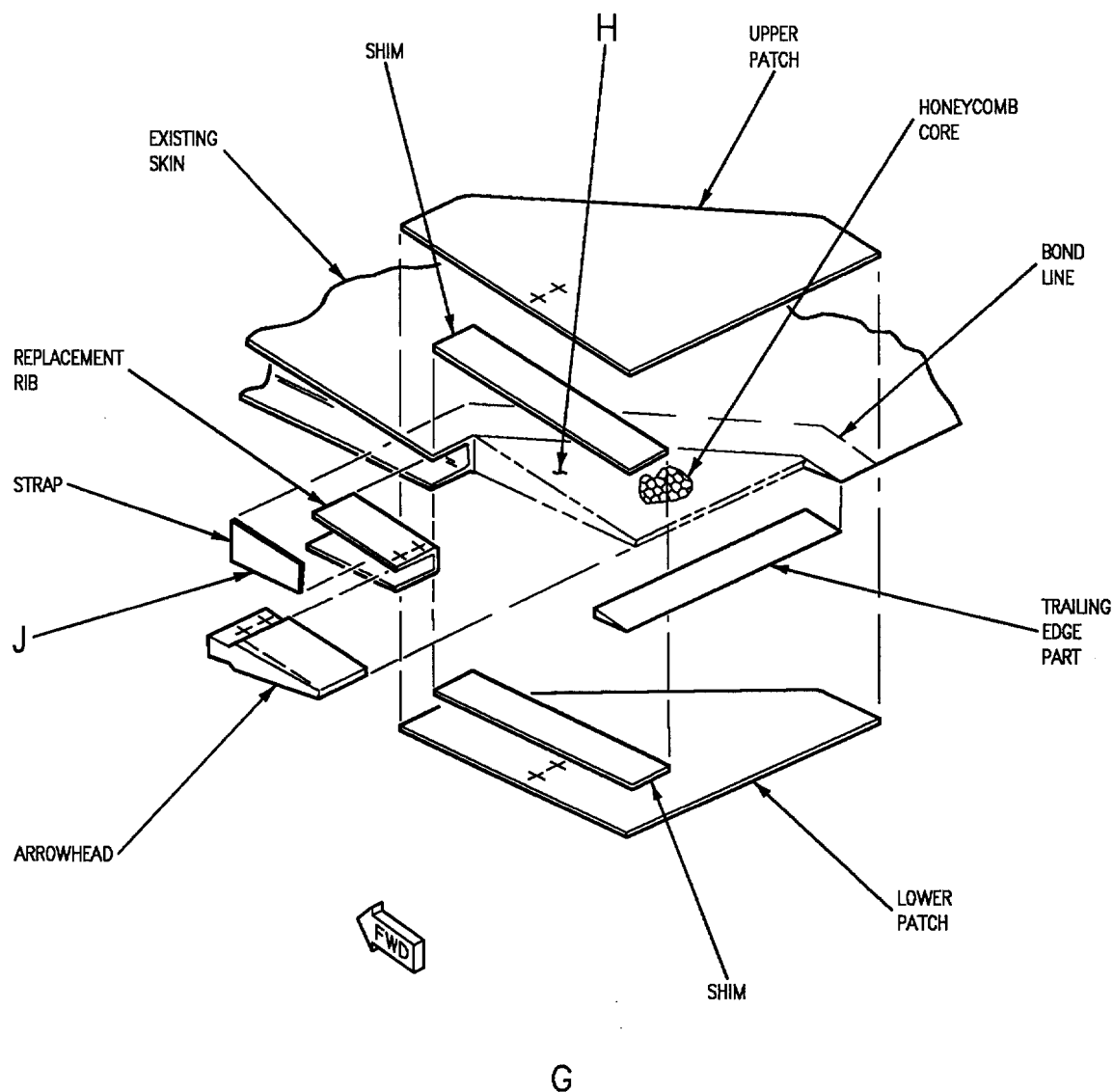
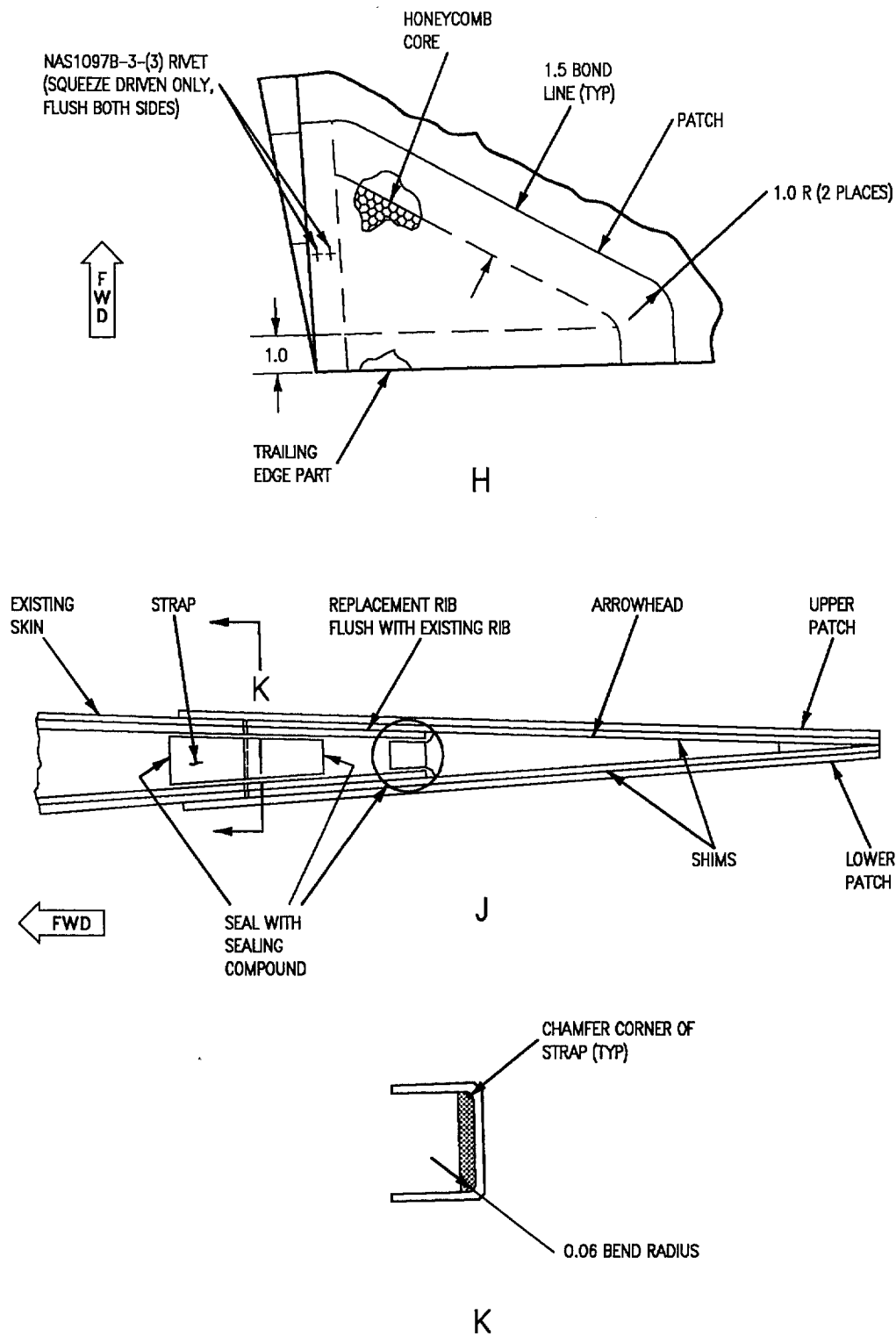


Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 5)

10010805



10010806

Figure 8. Trailing Edge Inboard or Outboard Corner Repair With Rib Fabrication  
(Sheet 6)



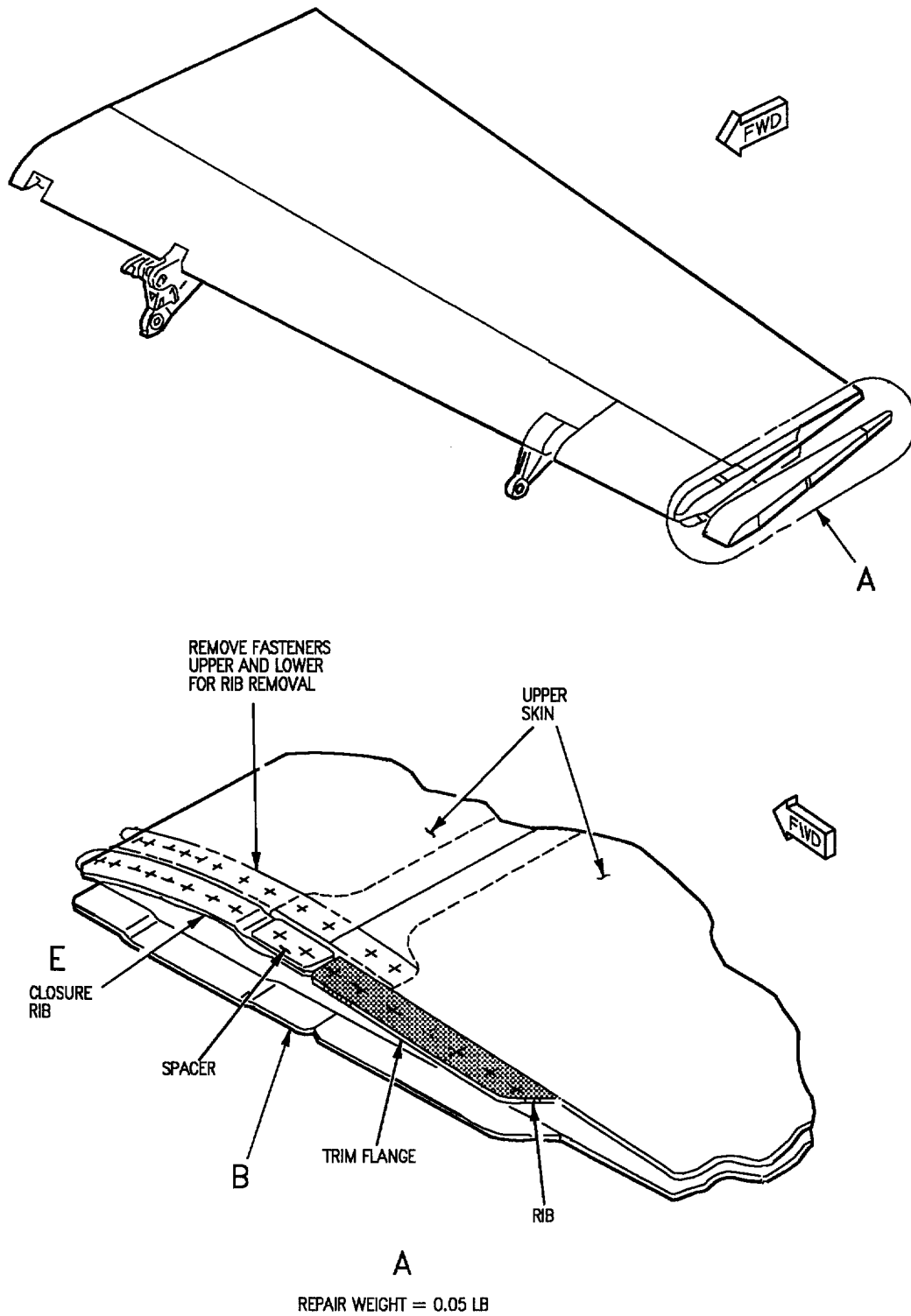


Figure 9. Outboard Rib Repair (Sheet 1)

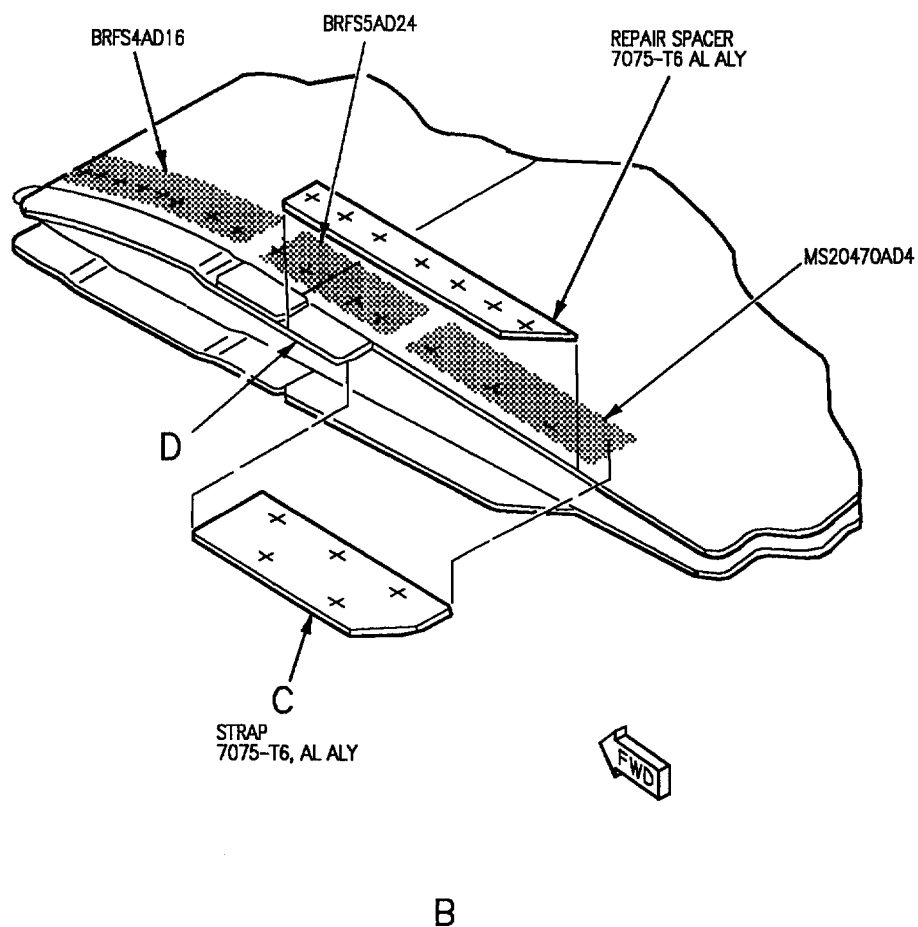


Figure 9. Outboard Rib Repair (Sheet 2)

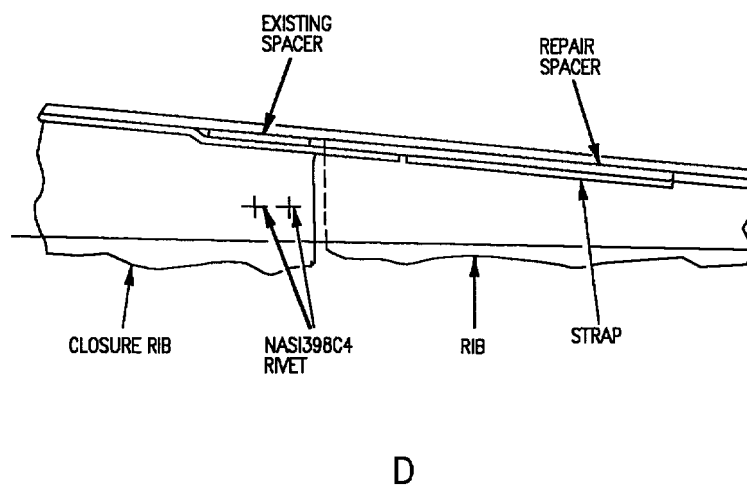
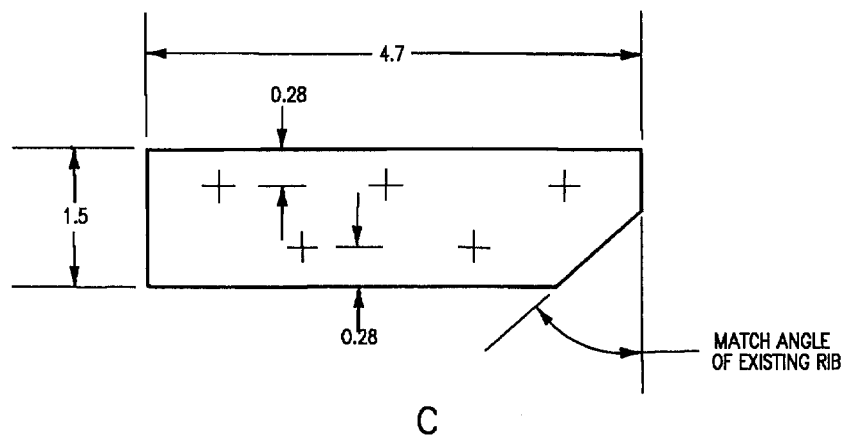
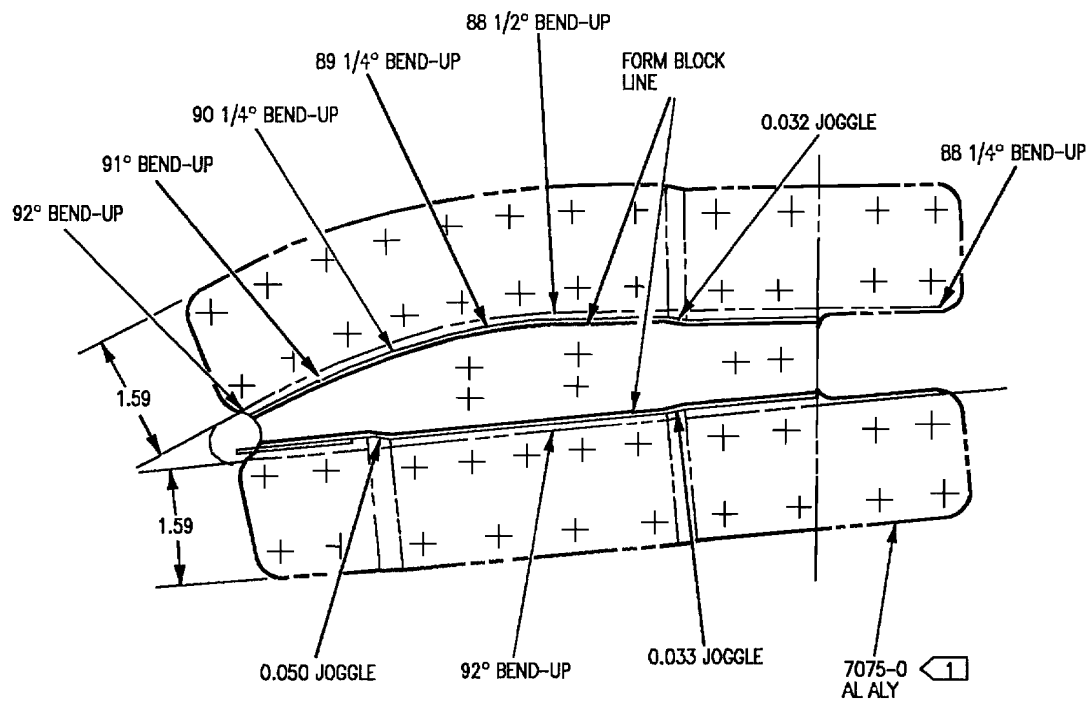


Figure 9. Outboard Rib Repair (Sheet 3)



E

## LEGEND

1 HEAT TREAT TO T6 CONDITION AFTER FORMING

Figure 9. Outboard Rib Repair (Sheet 4)

## 36. REPLACEMENT.

37. FAIRING - OUTER TIP, AILERON, 74A170758, REPLACEMENT. See figure 10. Fairing is replaceable and requires drilling. Fairing is spared with one 0.25 inch diameter drain hole. Hi-torque screws and plate nuts will replace 32 blind rivets to simplify the removal/installation of fairing for future maintenance.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Aircraft Structure	74D110325-1001
Repair Tool Kit	
Drill Motor,	No. 11 DPV-15DA-
Variable Speed	450/1250
Punch	SPT-0.125
Torque Wrench,	-
0 to 50 Inch-Pounds	
Vacuum Cleaner	MIL-V-21987

## Materials Required

Specification or Part Number	Nomenclature
Cheesecloth	CCC-C-440, Type 1, Class 1
Hi-Torque, Flush,	HT4025L3-2
Tension Head (4)	
Hi-Torque, Flush,	HT4025L3-3
Tension Head (4)	
Isopropyl Alcohol	TT-I-735, Grade 1
Olympic-Loks (2)	RV1241-3-3
Plate Nut	F49251E3-1
Rivet, Solid, Flush,	MS20426AD3
Tension Head (24)	
Rivet, Solid, Flush,	MS20426AD4
Tension Head (16)	
Sealing Compound	MIL-S-83430, CLB-2
Tape, Pressure Sensitive	A-A-883, Type 1, 1 inch

a. Remove aileron (A1-F18AC-570-300, WP010 00).

b. Place aileron on a suitable work bench or holding fixture.



Use care when drilling out rivets not to damage underlying structure.

c. Drill out 34 rivets securing damaged 74A170758 fairing to structure.

d. Remove damaged fairing and residual sealing compound remaining on structure.

e. Enlarge existing 0.1285 inch diameter hole in structure to 0.195 +0.007 -0.000 inch diameter at eight hole locations shown on detail A.

f. Apply 100° countersink to flushness requirement of fastener at 24 hole locations shown on detail A.

g. Temporarily secure plate nuts in directions indicated over 0.195 inch diameter holes in structure and mark location of attaching rivets 16 places, detail B.

h. Remove plate nuts and drill 0.098 +0.005 -0.000 inch diameter hole in structure at 16 locations shown on detail B.

i. Apply 100° countersink to flushness requirement of fastener at 16 hole locations shown on detail B.

j. Locate blind holes in 74A170758 fairing eight places (A1-F18AC-SRM-200, WP004 03).

k. Drill 0.195 +0.007 -0.000 inch diameter hole at eight hole locations in fairing, detail B.

l. Apply 100° countersink to flushness requirement of fastener at eight hole locations in fairing, detail B.

m. Temporarily install fairing on structure and secure in place using pressure sensitive tape.

n. Verify 0.195 hole diameters in fairing are in line with 0.195 hole diameters in structure.

o. Mark location of aft two holes in fairing flange using existing holes in 74A170740 skin as guide, details A and B

p. Remove pressure sensitive tape and fairing from aileron.

q. Drill 0.097 +0.004 -0.000 inch diameter hole at two hole locations in fairing flange, detail B.

r. Deburr all drilled holes as required.

s. Vacuum clean repair area of loose debris.



Isopropyl Alcohol

2

t. Clean repair area with clean cheesecloth moistened with isopropyl alcohol.

u. Apply finish system to bare exposed metal surfaces on structure (A1-F18AC-SRM-500, WP027 00).



Sealing Compound

6

v. Install MS20426AD4 rivets wet with sealing compound to 24 hole locations shown on detail A. For sealing compound preparation and application (A1-F18AC-SRM-200, WP011 00).

#### NOTE

Grinding may be required to bucked end of MS20426AD4 rivets to provide a flat surface for plate nuts.

w. Position plate nuts over 0.195 diameter holes, detail B.

x. Secure plate nuts to structure by installing MS20426AD3 rivets wet with sealing compound at 16 hole locations shown on detail B.

y. Fay surface seal interfacing surfaces of fairing and structure, detail C. For fay surface sealing techniques (A1-F18AC-SRM-200, WP011 00).

z. Elation 0.195 hole diameters in fairing with 0.195 hole admits instructure, detail B.

aa. Secure fairing to structure by installing bolts eight places. Torque bolts to 25 +0 -10 inch pounds.

ab. Install olympic-loks wet with sealing compound at two hole locations shown on detail B.

ac. Inject sealing compound flush with mold line at two hole locations shown on detail C.

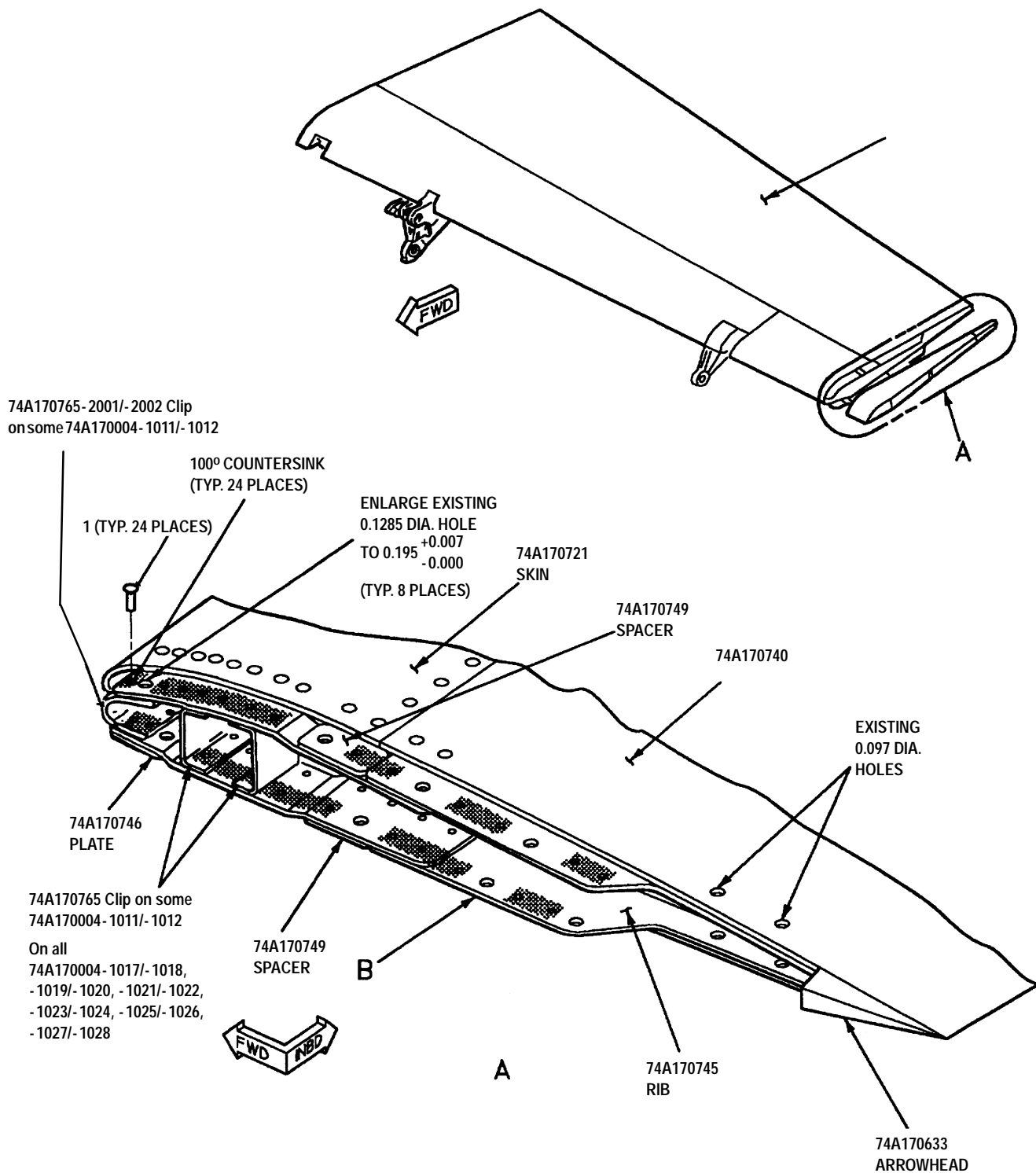
ad. Butt gap seal interfacing surfaces of 74A170758 fairing and 74A170633 arrowhead, detail C. For butt gap sealing techniques (A1-F18AC-SRM-200, WP011 00).



Make sure 0.25 inch diameter drain hole located on bottom aft surface of 74A170758 fairing is free of any sealing compound or FOD. Clogged drain hole will cause water entrapment and lead to corrosion of structure.

ae. Remove residual sealing compound using plastic scraper and/or clean cheesecloth moistened with isopropyl alcohol.

af. Apply finish system as required (A1-F18AC-SRM-500, WP027 00)



10011001

Figure 10. Fairing-Out Tip, Aileron (74A170758) (Sheet 1)

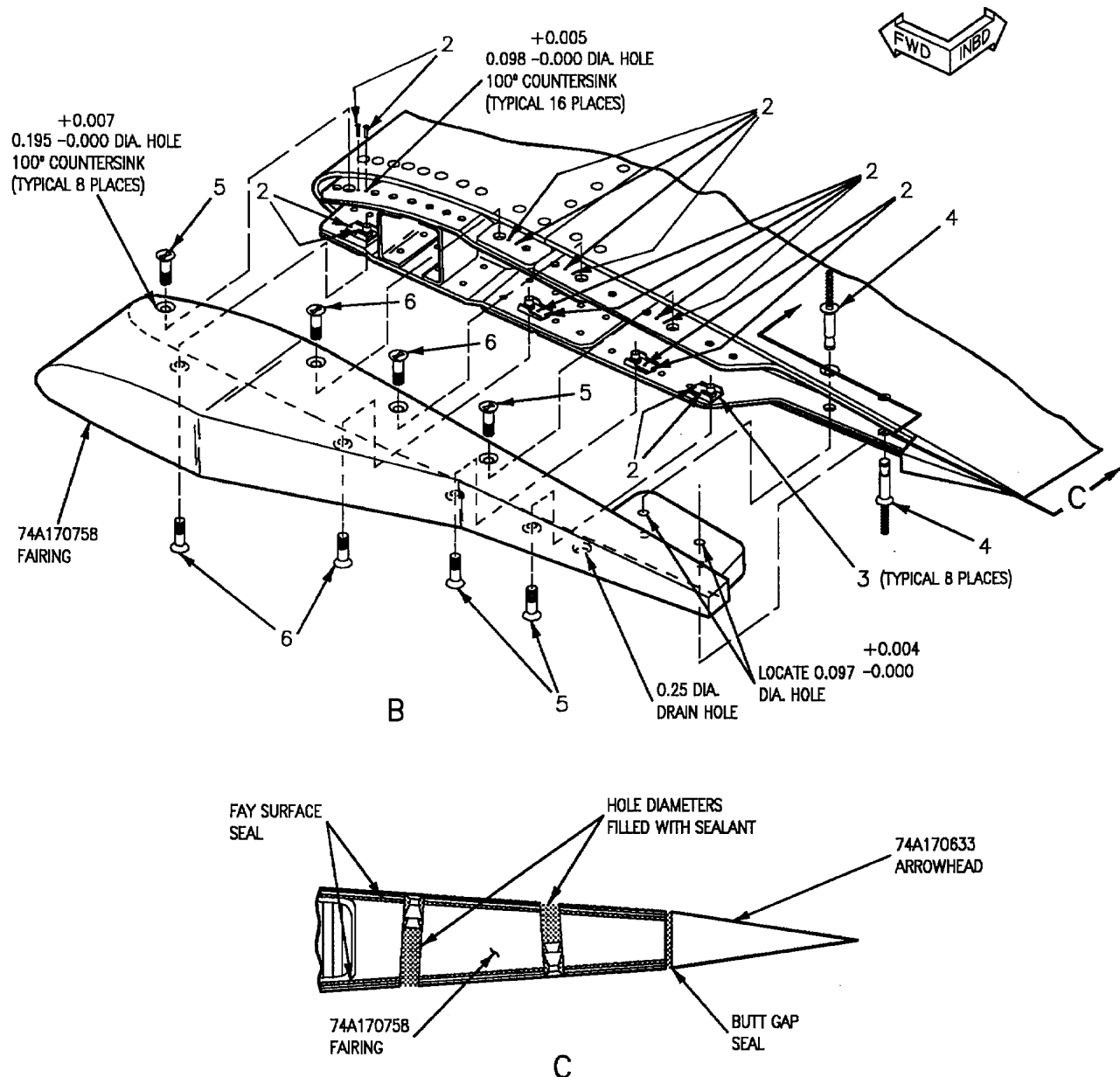


Figure 10. Fairing-Outer Tip, Aileron (74A170758) (Sheet 2)






Idx No.	Eft		Nomenclature	Part Number
1			Flush, Tension Head, Solid Rivet	MS20426AD4
2			Flush, Tension Head, Solid Rivet	MS20426AD3
3			Plate Nut	F49251E3-1
4			Olympic-Loks, Flush Head	RV1241-3-3
5			Flush, Tension Head, Hi-Torque	HT4025L3-2
6			Flush, Tension Head, Hi-Torque	HT4025L3-3
<p style="text-align: center;"><b>LEGEND</b></p> <p> Length of rivet determined on installation.</p>				

Figure 10. Fairing - Outer Tip, Aileron (74A170758) (Sheet 3)



## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## AILERON

## FREE PLAY INSPECTION AND WEAR TOLERANCES

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Integrated Flight Controls .....	A1-F18AC-570-300
Rig Mode and Memory Inspect, Effectivity: 161520 AND UP; ALSO 161353 THRU 161519 AFTER F18 AFC 27 .....	WP011 01
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Line Maintenance Procedures .....	A1-F18AC-LMM-000
Plane Captain Manual .....	A1-F18AC-PCM-000

## Alphabetical Index

Subject	Page No.
Description .....	1
Free Play Inspection for 161353 THRU 161519 .....	1
Free Play Inspection for 161520 AND UP .....	3
Wear Tolerances .....	3

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. Wear limits established for the aileron allow a maximum free play of 0.050 inch. The paragraphs below contain procedures for free play inspection, wear tolerances, support equipment and materials required.

3. FREE PLAY INSPECTION FOR 161353 THRU 161519. See figure 1. Do steps below:

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate

## Materials Required

None

- a. Make sure flap control surface lock is not installed (A1-F18AC-PCM-000).
- b. Make sure horizontal stabilator position support is not installed (A1-F18AC-PCM-000).
- c. Make sure doors 83L, 83R, 84L, 84R and radome are closed (A1-F18AC-LMM-010).
- d. On Digital Display Indicator ID-2150/ASM-612 in nose wheelwell, observe WPN SYS FAIL indicator.
- e. Apply electrical power (A1-F18AC-LMM-000).
- f. On GND PWR control panel assembly, set 1 switch to A ON and 2 switch to B ON.
- g. Set left and right Digital Display Indicator (DDI) IP-1317/A power switch to DAY or NIGHT. Allow 2 minute warmup. Adjust BRT and CONT controls for best display.
- h. Press right DDI MENU pushbutton switch.
- i. Press right DDI BIT pushbutton switch.
- j. On LH vertical console control panel, set FLAP switch to AUTO.
- k. On FCS Control Panel C-10406/ASW-44, set the GAIN switch to NORM.
- l. On MAP GAIN control panel assembly, set SPIN switch to NORM.

m. On GND PWR control panel assembly, set 4 switch to B ON.

n. Wait 20 seconds for BIT to initialize.

o. Simultaneously press the below switches:

(1) On FCS Control Panel C-10406/ASW-44, press RESET switch.

(2) On Control Stick Sensor DT-601/ASW-44, press the autopilot/nosewheel steering disengage switch (paddle switch).

**WARNING**

Control surfaces move during initiated BIT with hydraulic power applied. To prevent personnel injury or equipment damage, be sure personnel and equipment are kept clear of control surfaces.

p. Apply hydraulic power to system 1 and 2 (A1-F18AC-LMM-000).

q. On FCS Control Panel C-10406/ASW-44, press RESET switch.

r. On FCS Control Panel C-10406/ASW-44, press T/O TRIM PUSH switch.

**CAUTION**

Use extreme care when installing clamp not to damage skin or paint.

s. Attach dial indicator mount to trailing edge flap with dial indicator clamp, using a nonmetallic sheet between clamp and trailing edge flap.

t. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.

u. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of aileron. Adjust dial indicator to 0.

v. Thread spring resiliency tester into aluminum plate. Place aluminum plate on upper surface of aileron at correct location and apply a 15 pound down load.

w. Readjust dial indicator to 0 with load applied.

x. Place spring resiliency tester with aluminum plate and rubber pad on lower surface of aileron and apply a 15 pound up load.

y. Record total deflection from dial indicator with 15 pound load applied.

z. Total deflection should not exceed 0.050 inch. A total deflection that exceeds 0.050 inch requires depot engineering disposition.

aa. Remove dial indicator assembly from dial indicator mount.

ab. Remove electrical and hydraulic power (A1-F18AC-LMM-000).

ac. Remove dial indicator clamp and mount from trailing edge flap.

ad. Remove aluminum plate from spring resiliency tester.

ae. Refinish surface (A1-F18AC-SRM-500, WP027 00).

#### 4. FREE PLAY INSPECTION FOR 161520 AND UP. See figure 1. Do steps below:

#### Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
Dial Indicator Kit (0.001 Inch Graduations, Minimum)	196 (Starrett or Equivalent)
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate
Spring Resiliency Tester	DPPH150

#### Materials Required

None

a. Do rig mode setup (A1-F18AC-570-300, WP011 01).

b. On LH vertical console control panel, set FLAP switch to HALF.

c. Attach dial indicator mount to trailing edge flap with dial indicator clamp using a nonmetallic sheet between clamp and trailing edge flap.

d. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.

e. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of aileron. Adjust dial indicator to 0.

f. Thread spring resiliency tester into fabricated aluminum plate. Place aluminum plate on upper surface of aileron at correct location and apply a 15 pound down load.

g. Readjust dial indicator to 0 with load applied.

h. Place spring resiliency tester with fabricated aluminum plate and fabricated rubber pad on lower surface of aileron and apply 15 pound up load.

i. Record total deflection from dial indicator with 15 pound load applied.

j. Total deflection should not exceed 0.050 inch. A total deflection that exceeds 0.050 inch requires a depot engineering disposition.

k. Remove dial indicator assembly from dial indicator mount.

l. Set flap switch to AUTO.

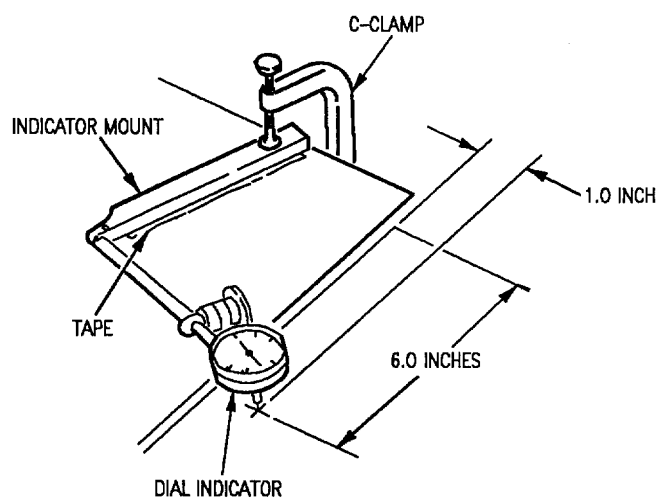
m. Do rig mode shutdown (A1-F18AC-570-300, WP011 01).

n. Remove dial indicator clamp and mount from aileron.

o. Remove aluminum plate from spring resiliency tester.

p. Refinish surface (A1-F18AC-SRM-500, WP027 00).

5. **WEAR TOLERANCES.** See figure 2. Clearances require depot engineering disposition.



A

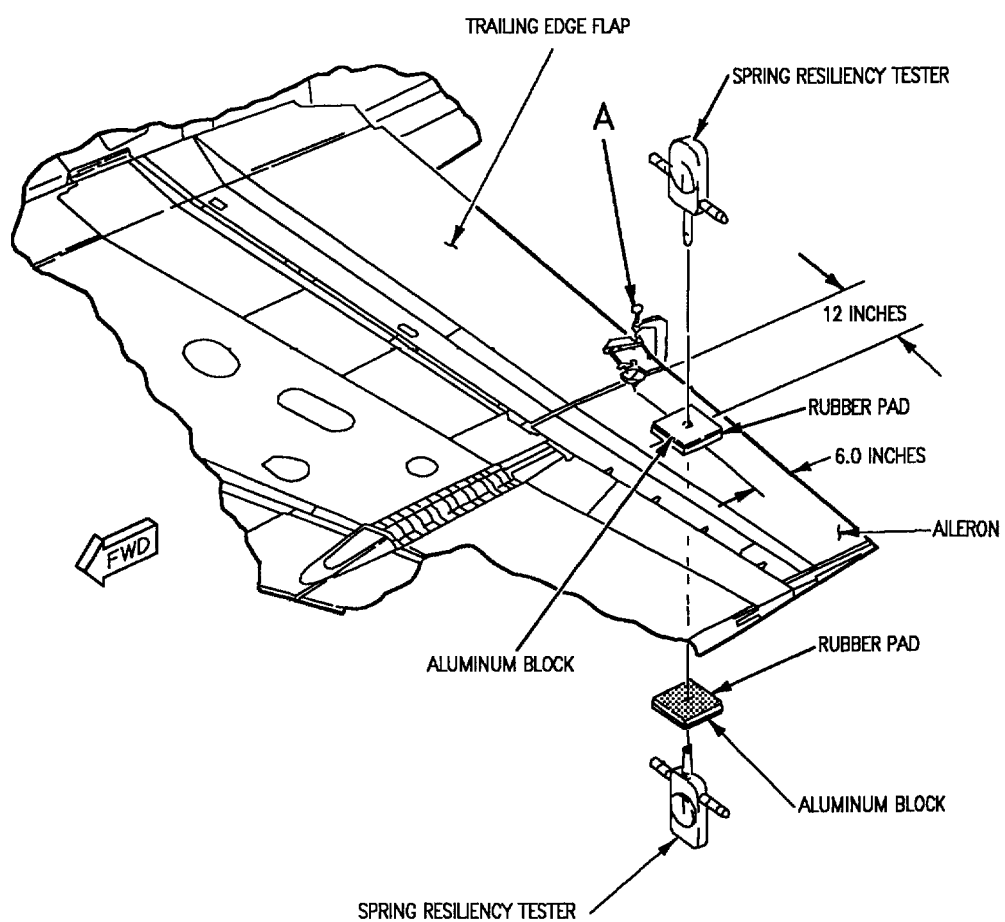
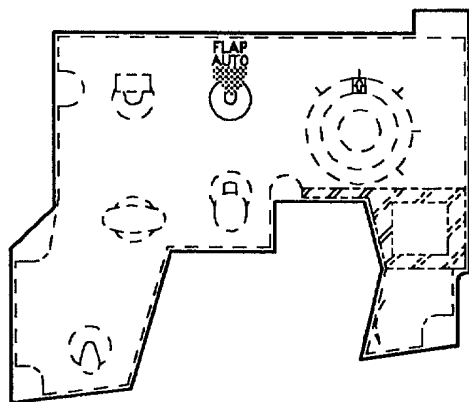
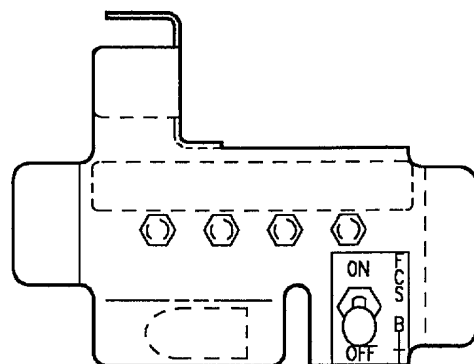


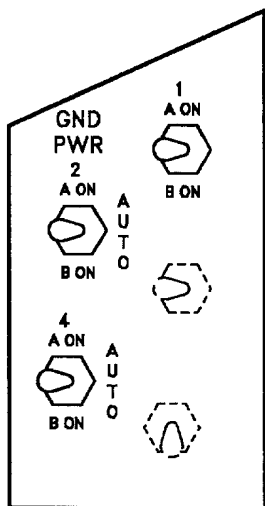
Figure 1. Free Play Inspection (Sheet 1)



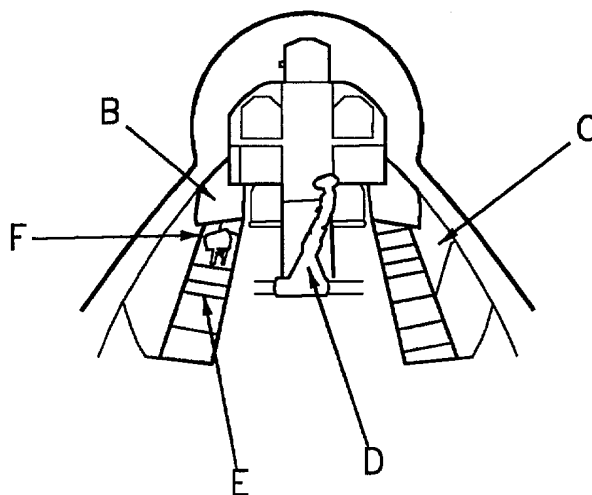
B



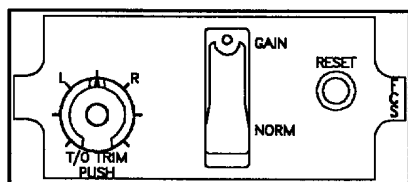
C



F

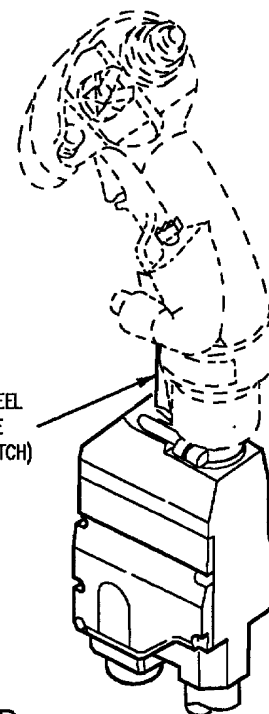


E



E

AUTOPILOT/NOSEWHEEL  
STEERING DISENGAGE  
SWITCH(PADDLE SWITCH)



D

Figure 1. Free Play Inspection (Sheet 2)

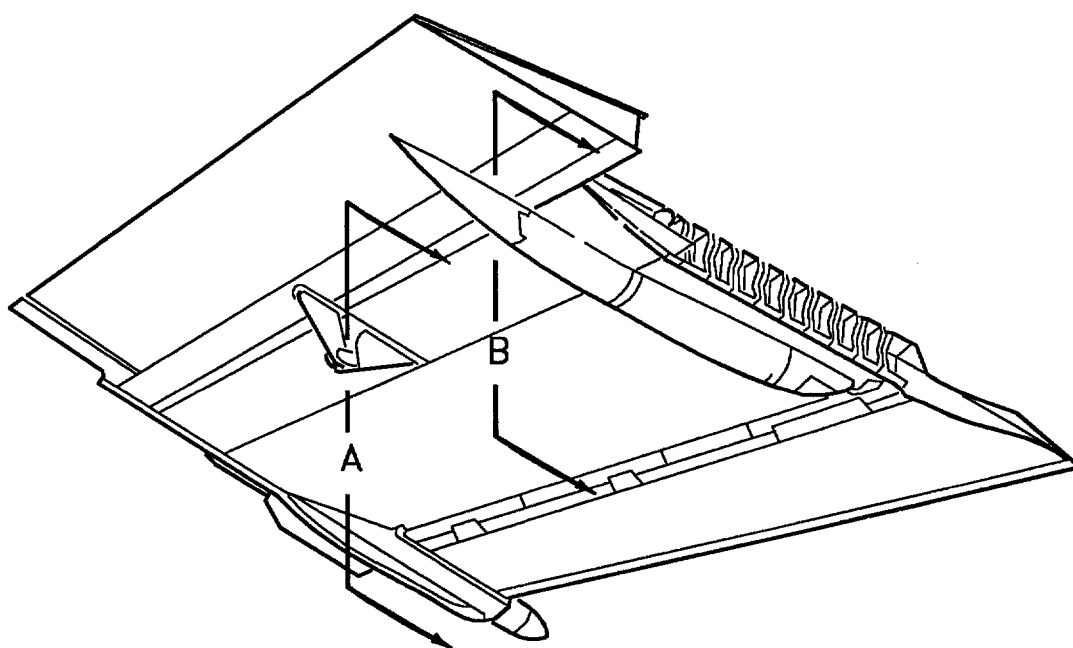


Figure 2. Wear Tolerances (Sheet 1)



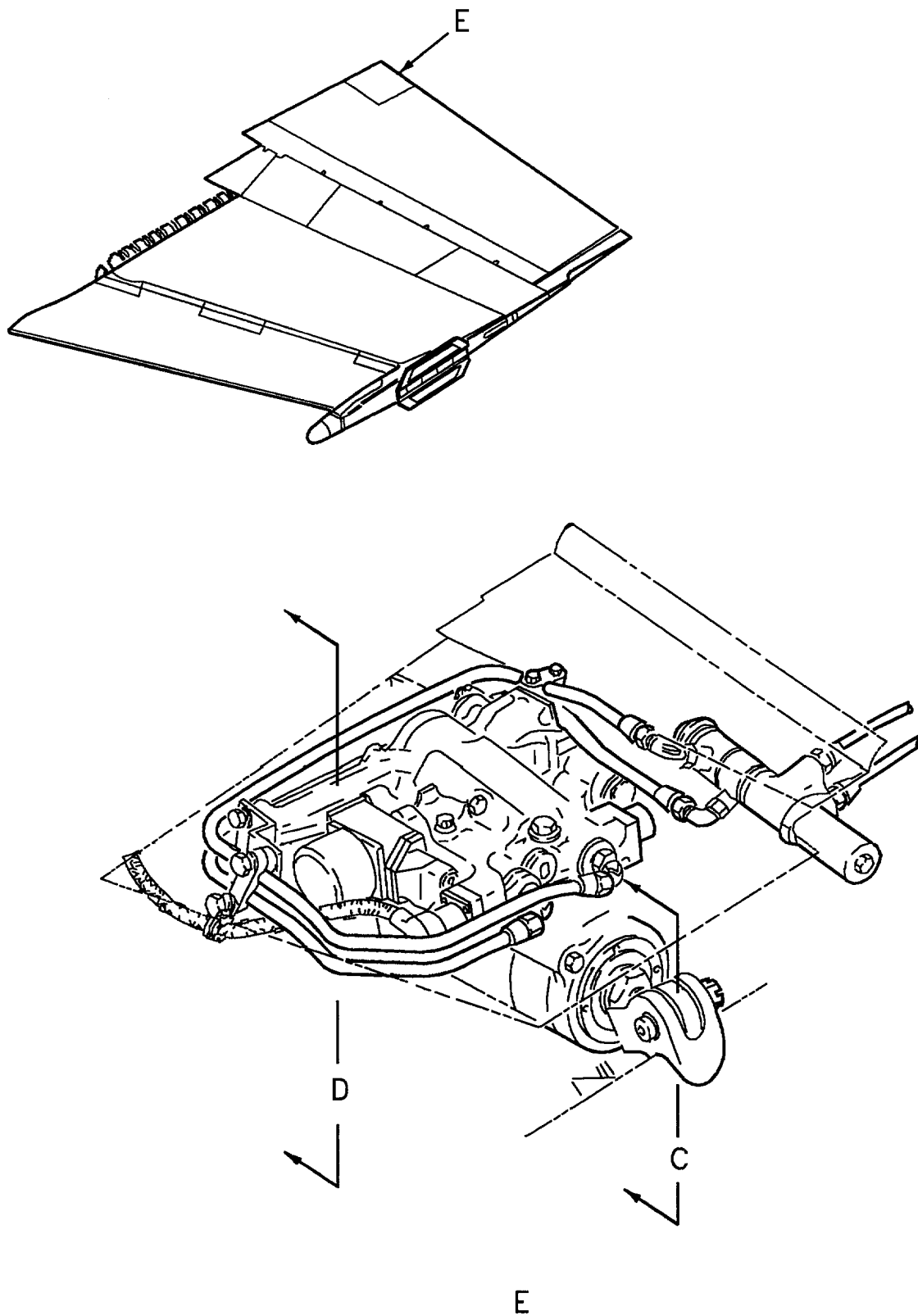


Figure 2. Wear Tolerances (Sheet 2)

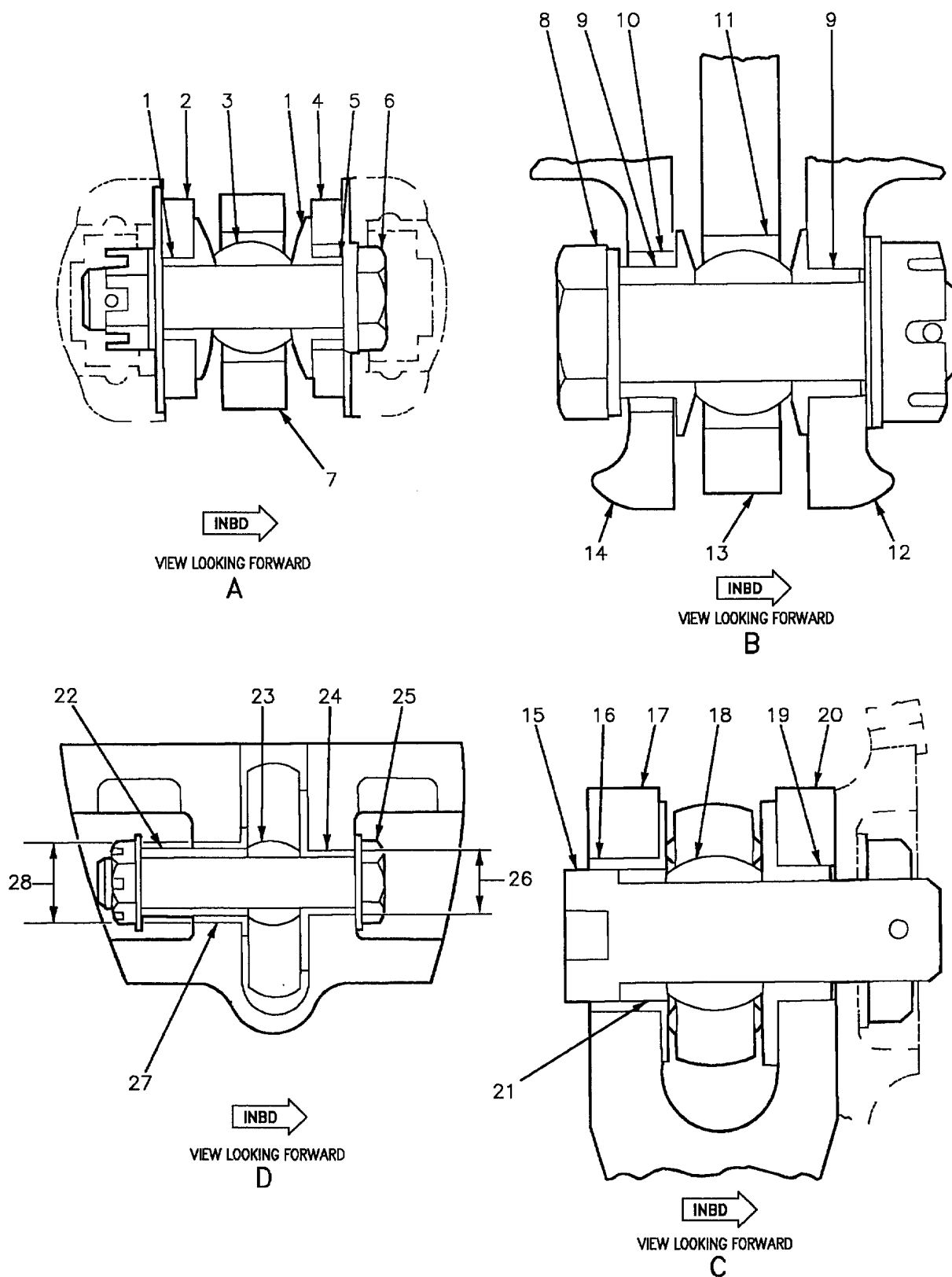


Figure 2. Wear Tolerances (Sheet 3)








DET	IDX NO.	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE
A	1	 74A150749-2003	BUSHING	0.3750+0.0015-0.0000 I.D. 0.5013-0.0000-0.0007 O.D.	
		 74A150859-2003	BUSHING	0.3750+0.0015-0.0000 I.D. 0.5013+0.0000-0.0007 O.D.	
	2	74A150830	HINGE HALF	0.5000+0.0005-0.0000	
	3	MS14103-6	BEARING	0.3750+0.0000-0.0005 I.D. 0.8125+0.0000-0.0005 O.D.	
	4	74A150830	HINGE HALF	0.6250+0.0005-0.0005	
	5	4M43C8-005	BUSHING	0.5016+0.0010-0.0000 I.D. 0.6275+0.0000-0.0008 O.D.	
	6	NAS-676-V20D	BOLT	0.3745+0.0005-0.0005	
	7	 74A170736  74A170762	HINGE HALF HINGE HALF	0.8125+0.0005-0.0000 0.8125+0.0005-0.0000	
B	8	ST3M744-10D31	BOLT	0.6240+0.0000-0.0005	
	9	 74A150758-2003  74A150859-2001	BUSHING BUSHING	0.6245+0.0022-0.0000 I.D. 0.8142+0.0000-0.0010 O.D. 0.6245+0.0022-0.0000 I.D. 0.8145+0.0000-0.0010 O.D.	
	10	4M43C13-010	BUSHING	0.8147+0.0005-0.0000 I.D. 1.0033+0.0000-0.0010 O.D.	
	11	MS14103-10	BEARING	0.6250+0.0000-0.0005 I.D. 1.1875+0.0000-0.0005 O.D.	
	12	74A150821	HINGE HALF	0.8125+0.0005-0.0005	
	13	74A170604	HINGE HALF	1.1875+0.0005-0.0000	
	14	74A150821	HINGE HALF	1.0000+0.0010-0.0005	
C	15	ST3M865-10-1	BOLT	0.6240+0.0000-0.0005	
	16	ST4M130-12014	BUSHING	0.8125+0.0000-0.0005 I.D. 0.9403+0.0000-0.0010 O.D.	
	17	74A170604	HINGE HALF	0.9375+0.0005-0.0005	
	18	34001890	SERVOCYLINDER ASSY	0.6250+0.0000-0.0005 I.D. 1.1875+0.0000-0.0005 O.D.	
	19	74B170051-2001	BUSHING	0.6250+0.0010-0.0000 I.D. 0.8150+0.0000-0.0010 O.D.	
	20	74A170604	HINGE HALF	0.8125+0.0005-0.0005	
	21	 74A691204-2001	BUSHING	0.6222+0.0006-0.0000 I.D. 0.8115+0.0000-0.0005 O.D.	

Figure 2. Wear Tolerances (Sheet 4)

DET	IDX NO.	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE
D	22	ST4M166-10-1025	BUSHING	0.6250+0.0010-0.0000 I.D. 0.8115+0.0000-0.0005 O.D.	
	23	34001890	SERVOCYLINDER ASSY	0.6250+0.0000-0.0005 I.D. 1.1875+0.0000-0.0055 O.D.	
	24	74A150739	BUSHING	0.6250+0.0010-0.0000 I.D. 0.8125+0.0000-0.0010 O.D.	
	25	NAS1262-40D	BOLT	0.6240+0.0000-0.0005	
	26	74A150821	HINGE HALF	0.8125+0.0005-0.0005	
	27	ST4M139C13-13-60	BUSHING	0.8120+0.0005-0.0000 I.D. 1.0033+0.0000-0.0010 O.D.	
	28	74A150821	HINGE HALF	1.000+0.0010-0.0005	

## LEGEND

1	161353 THRU 161987
2	162394 AND UP
3	161353 THRU 161924
4	161925 AND UP

Figure 2. Wear Tolerances (Sheet 5)

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DEPOT MAINTENANCE  
STRUCTURE REPAIR  
MAINTENANCE FIXTURE RE174170004-1, -2  
AILERON

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**Reference Material**

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Structure Repair, General Information .....	A-F18AC-SRM-200
Drilling Machines .....	WP004 17
Bushing Removal, Installation, and Reaming Tool Set, Part No. 74D110174-1001 .....	WP004 37
Bearing Removal and Installation Tool Set, Part No. 74D110166-1001 .....	WP004 38

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**Record of Applicable Technical Directives**

None

**1. DESCRIPTION.**

2. The aileron maintenance fixture (fixture) is used to evaluate and repair the aileron. The fixture contains locators for various details on the aileron and supports to hold the aileron in position during repair actions. The supports and locators also serve as gaging surfaces for damage inspection. The maintenance stands (stands) support and position fixture. The fixture requires accurate leveling and verification, with an alignment kit, before use and should be gage recycled with

the aileron alignment kit to verify fixture remains accurate.

**3. INSTALLATION OF MAINTENANCE STANDS FOR USE WITH AILERON MAINTENANCE FIXTURE. See figure 1.**

**Support Equipment Required**

Nomenclature	Type Designation or Part Number
Maintenance Stand	RE474000004

## Materials Required

None

a. Hoist stands with an overhead hoist attached to hoist fitting (detail 128).

b. Position stands as below:

(1) Center stud bolts (detail 121) in slot in plate (detail 13C), view B.

(2) Distance between indentations in heads of stud bolts (detail 121) is  $94 \pm 1$  inches.

(3) Align centerline of spindles (detail 13) in line within 1.5 degrees of each other.

c. Anchor each stand to floor with six 3/8 inch bolts.

d. Disengage L-pin (detail 14) from spindles (detail 13). Rotate spindles (detail 13) until plate (detail 13C) is parallel to floor with head of stud bolt (detail 121) up.

e. Reengage L-pin (detail 14) with spindles (detail 13).

## WARNING

Inspect L-pins (detail 14) on maintenance stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

f. Support the adjustable support (detail 12) with an overhead hoist attached to hoist fitting (detail 128),

remove cotter pin (detail 110), nut (detail 111), washer (detail 112) from T-pin (detail 108), view C.

g. Remove T-pin (detail 108) from adjustable support (detail 12) and lower support (detail 11), view C.

h. Raise adjustable support (detail 12) until the upper surface of the plate (detail 13C) is 44.0 inches above floor. Re-install T-pin (detail 108) into lower support (detail 11) and adjustable support (detail 12), view C.

i. Install washer (detail 112), two nuts (detail 111) on T-pin (detail 108), tighten nuts (detail 111) and install cotter pin (detail 110), view C.

j. Loosen jamnut (detail 115) and nut (detail 116) on eyebolt (detail 119), rotate eyebolt (detail 119) clear of plate (detail 13C), view A.

k. Swing upper plate (detail 101) clear of plate (detail 13C), view D.

l. Loosen jamnut (detail 115) and adjust nut (detail 114) to obtain a 0.40 inch preload dimension on disc springs (detail 117) two places each stand, view D.

m. Tighten jamnut (detail 115) after preload dimension is reached, two places each stand, view D.

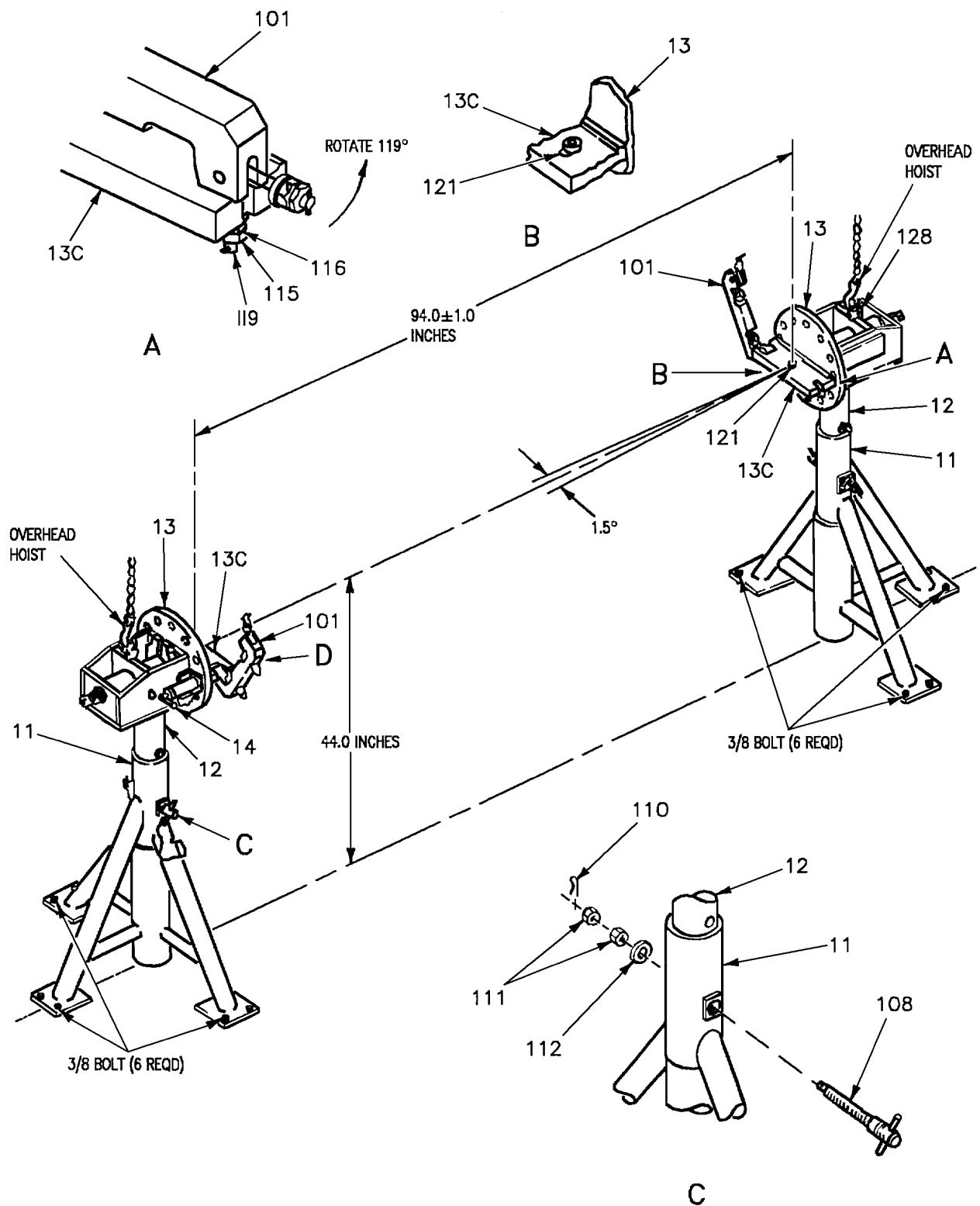


Figure 1. Installation of Maintenance Stands (Sheet 1)

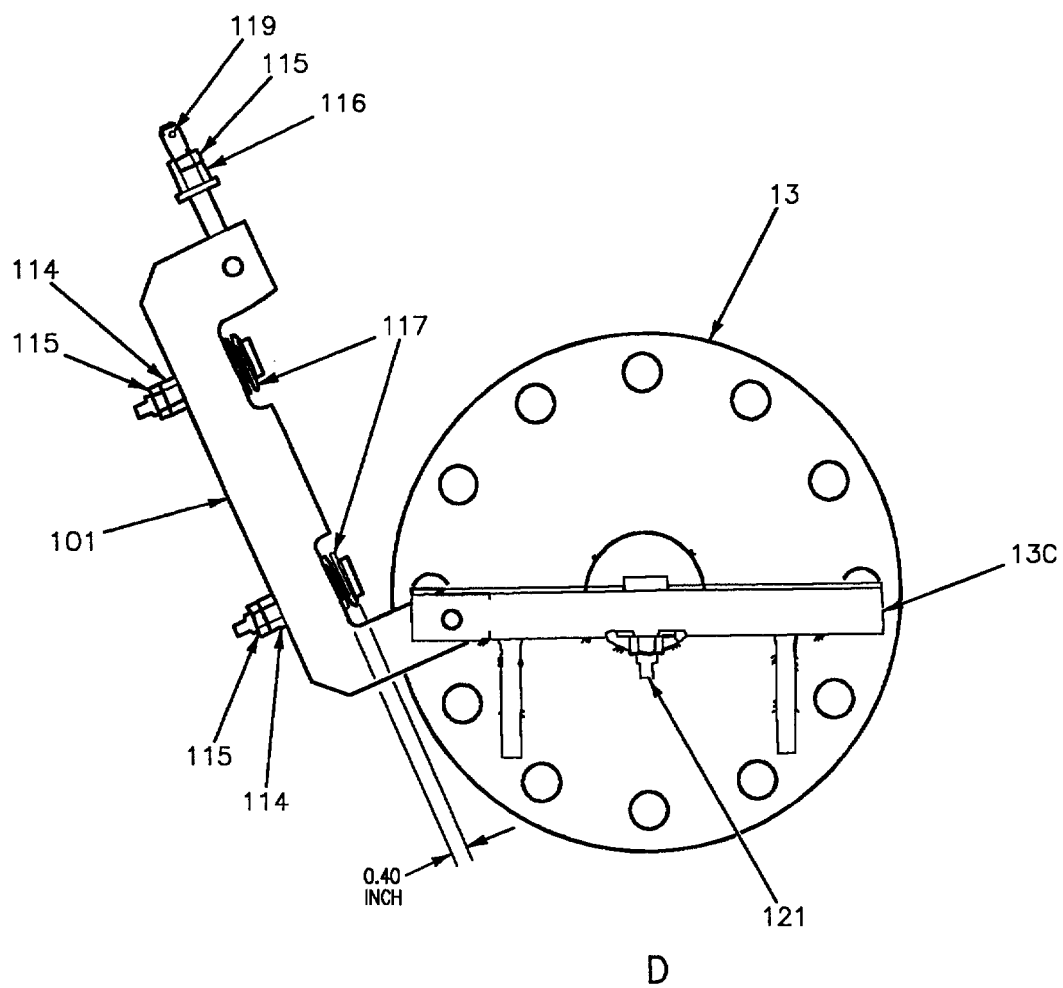


Figure 1. Installation of Maintenance Stands (Sheet 2)



Detail No.	Name	Function
11	Lower support	Supports maintenance fixture.
12	Adjustable support	Supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
108	T-Pin	Locates details 11 and 12.
110	Cotter pin	Secures detail 108 in place.
111	Nut	Secures detail 108 in place.
112	Washer	Secures detail 108 in place.
114	Nut	Adjusts preload dimension for detail 117.
115	Jamnut	Secures details 114 and 116 in place.
116	Nut	Secures detail 119 in place.
117	Disc spring	Used for preload dimension.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.
128	Hoist fitting	Support maintenance stands while hoisting.

Figure 1. Installation of Maintenance Stands (Sheet 3)

4. INSTALLATION OF AILERON MAINTENANCE FIXTURE INTO MAINTENANCE STANDS. See figure 2.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
--------------	------------------------------------

Alignment Set	AK174170004-1, -2
---------------	-------------------

### Materials Required

None

a. Hoist maintenance fixture (fixture) in the horizontal position with an overhead hoist attached to four hoist fittings (detail 245) on fixture. See figure.

<b>WARNING</b>
----------------

Inspect L-pins (detail 14) on maintenance stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

b. Lower fixture aligning counter bores in end plates (detail 11R) on fixture with stud bolt (detail 121) on stands, view A.

c. Swing upper plate (detail 101) on stand over end plate (detail 11R) on fixture, view A.

d. Swing eyebolt (detail 119) down into slot in plate (detail 13C), tighten nut (detail 116) clamping fixture to stand and tighten jamnut (detail 115) to lock nut (detail 116) in place, view A.

e. Disconnect overhead hoist from four hoist fittings (detail 245) on fixture.

f. Rotate fixture to make sure it clears floor and stands.

g. Rig and align the fixture by installing the maintenance fixture alignment set.

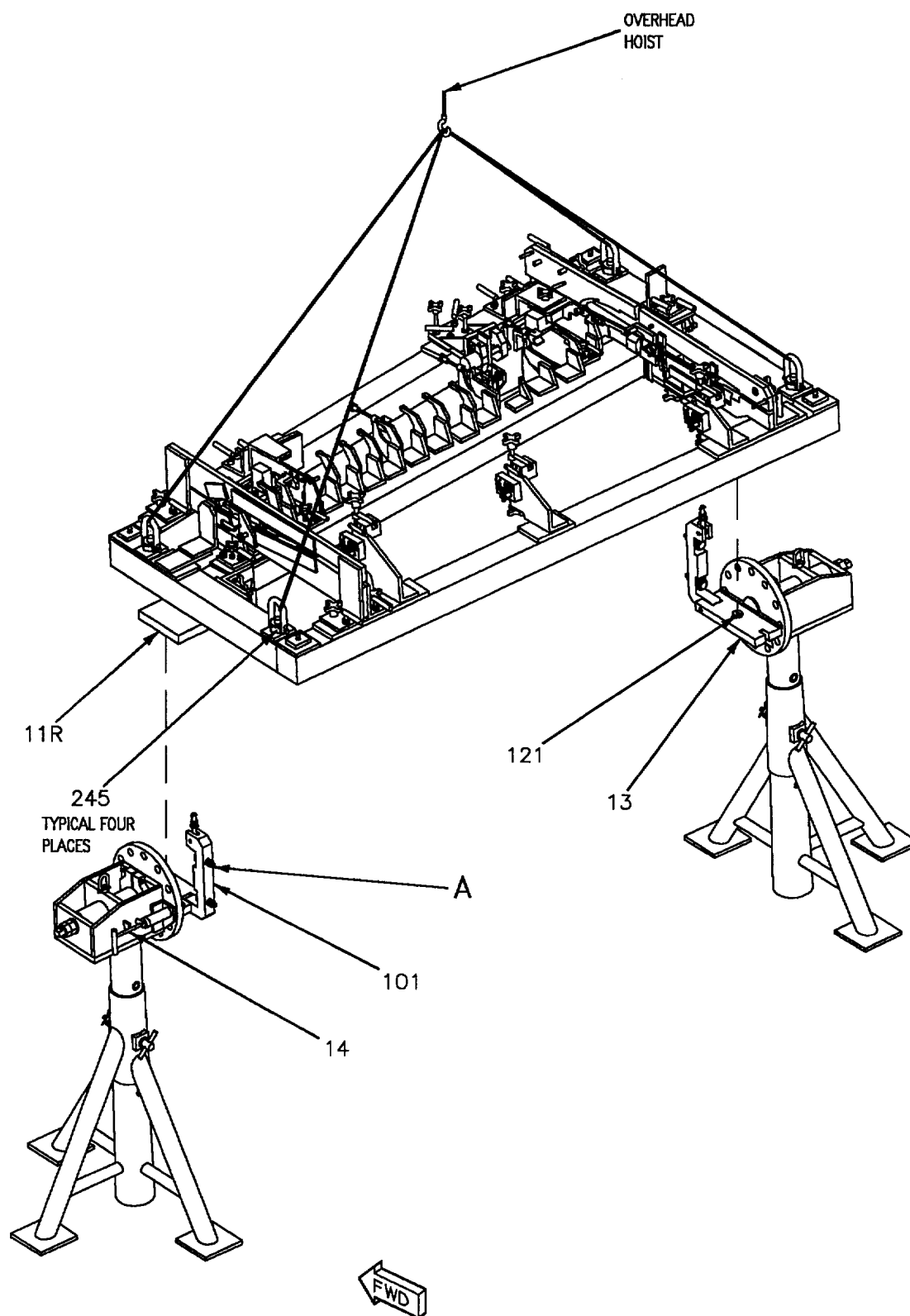


Figure 2. Installation of Maintenance Fixture (Sheet 1)

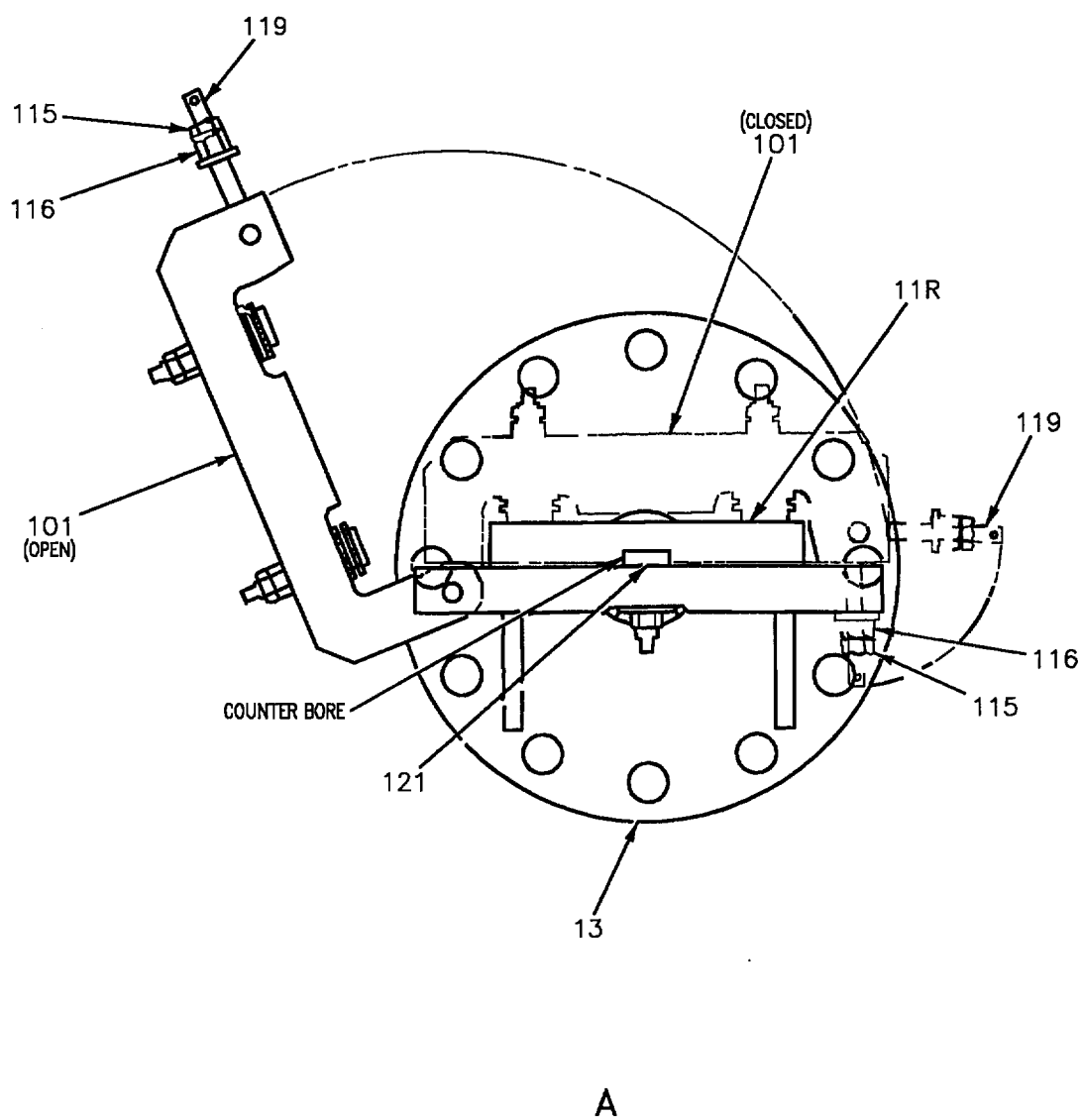


Figure 2. Installation of Maintenance Fixture (Sheet 2)

Detail No.	Name	Function
11R	End plate	Aligns and supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
115	Jamnut	Secures detail 116 in place.
116	Nut	Secures detail 119 in place.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.
245	Hoist fitting	Supports maintenance fixture while hoisting.

Figure 2. Installation of Maintenance Fixture (Sheet 3)

**5. PREPARATION OF MAINTENANCE FIXTURE.** See figure 3. Before loading aileron assembly into maintenance fixture, removable or adjustable details shall be removed or retracted to clear the fixture for positioning of the aileron assembly.

### Support Equipment Required

None

### Materials Required

None

a. Rotate fixture to be parallel with the floor. See sheet 1 of figure.

b. Remove contour board (detail 165) by removing L-pins (detail 114) and hand knobs (detail 130), two places each, view A.

c. Remove contour boards (details 161 and 163) by removing L-pins (detail 114) and hand knobs (detail 130), four places each, view B.

d. Remove subassembly B from frame (detail 11):

### NOTE

It may be required to attach a hoist to support subassembly B, before removing from frame.

(1) Remove L-pins (detail 114) and hand knobs (detail 130), two places each, from inboard end of subassembly B, view C.

(2) Remove L-pins (detail 114) and hand knobs (detail 130), two places each, from outboard end of subassembly B, view D.

(3) Lower subassembly B away from frame (detail 11).

e. Retract trailing edge locators, three places:

(1) Remove L-pin (detail 155), view E.

(2) Rotate locator (detail 159) to retracted position, view E.

(3) Loosen hand knob (detail 158), view E.

(4) Slide locators (detail 16, 17, and 18) to retracted position, view E.

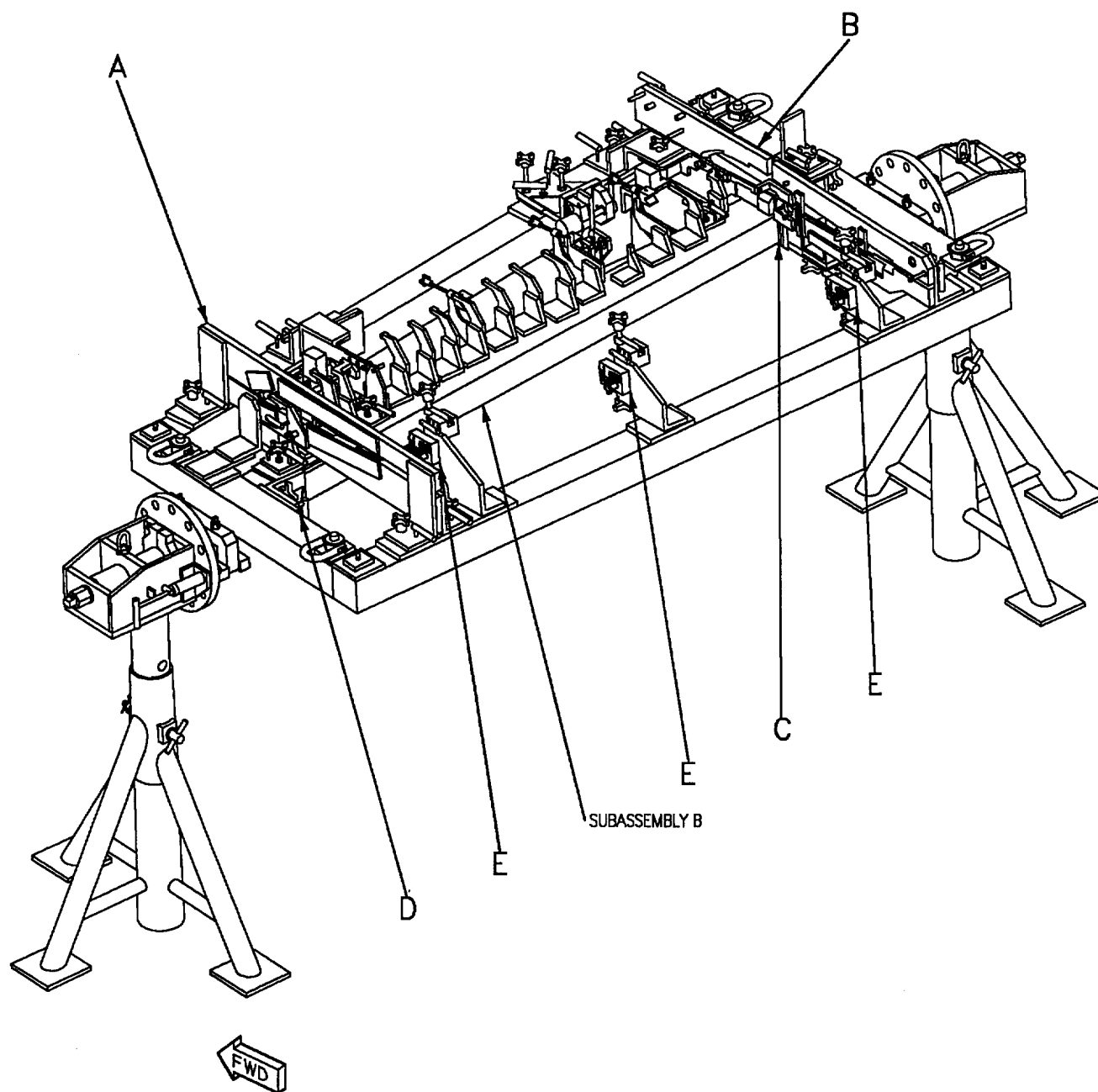
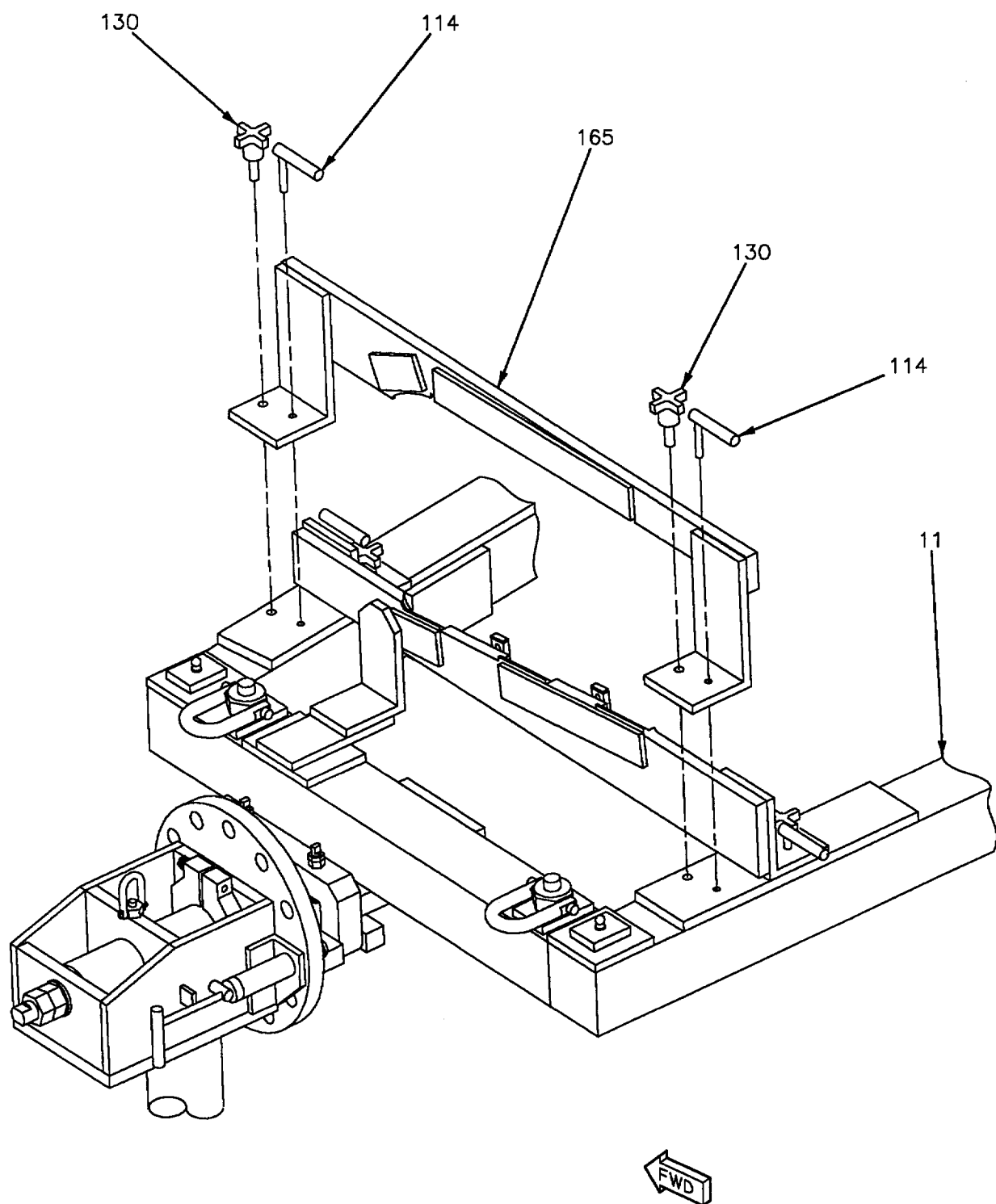


Figure 3. Preparation of Maintenance Fixture (Sheet 1)



A

Figure 3. Preparation of Maintenance Fixture (Sheet 2)

10030302





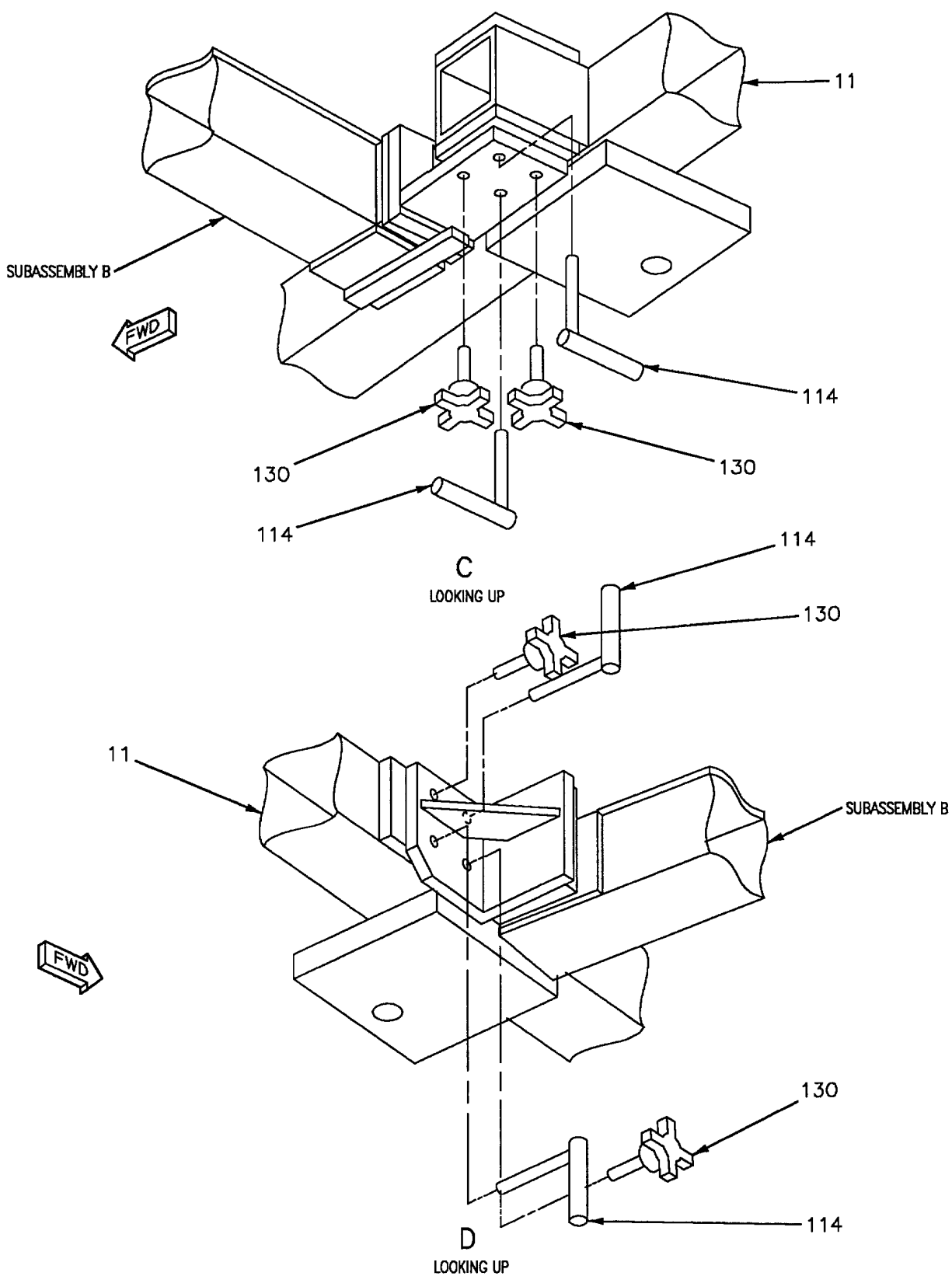
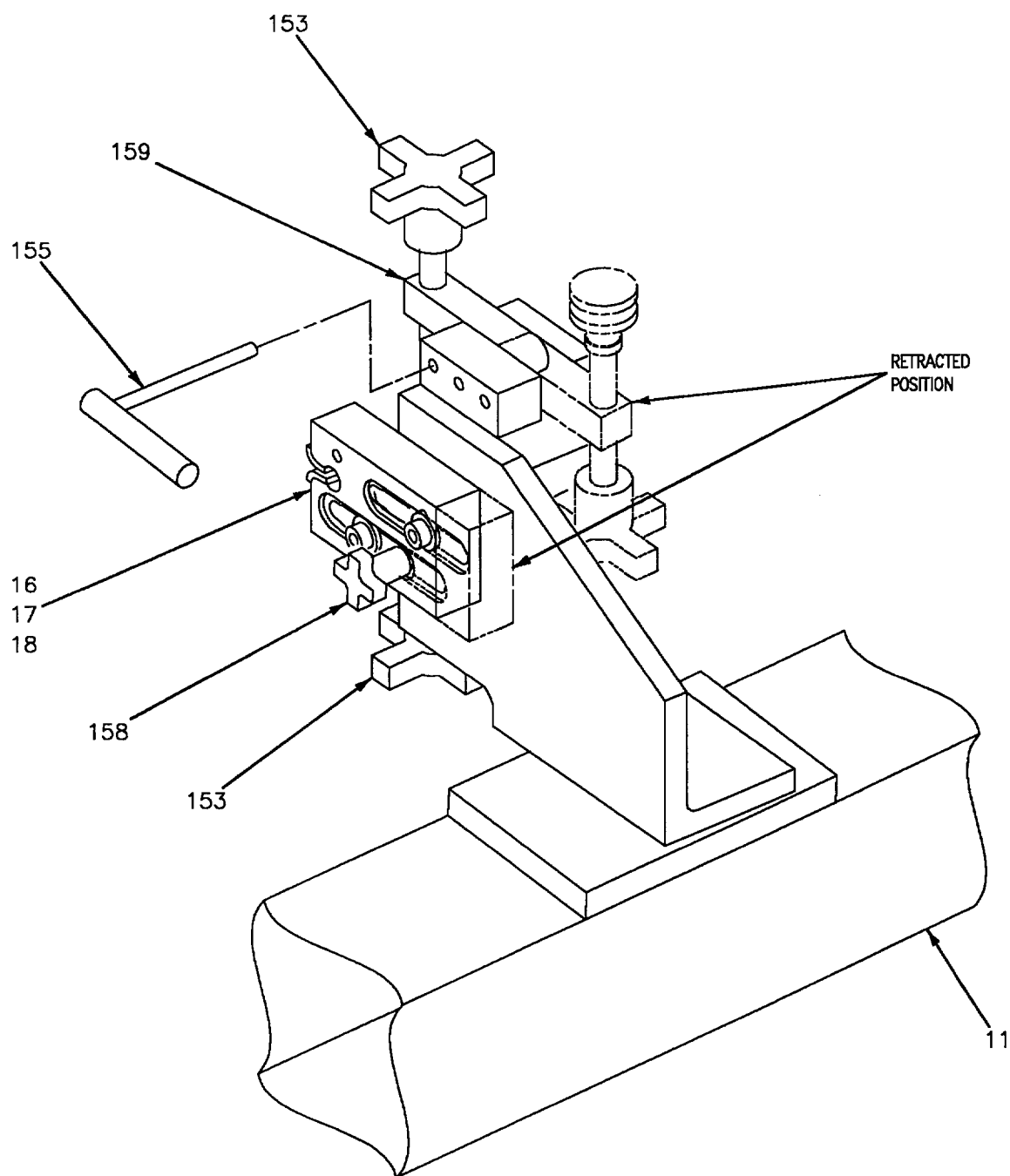


Figure 3. Preparation of Maintenance Fixture (Sheet 4)



E

TYPICAL THREE PLACES

Figure 3. Preparation of Maintenance Fixture (Sheet 5)

Detail No.	Name	Function
Subassembly B	Rib Locator Assembly	Locates ribs in aileron structure.
11	Frame	Main support for holding details.
16	Locator	Locates and supports aileron trailing edge at outboard end.
17	Locator	Locates and supports aileron trailing edge at center of trailing edge.
18	Locator	Locates and supports aileron trailing edge at inboard end.
114	L-Pin	Locates and attaches various details to others.
130	Hand Knob	Secures various details to others.
153	Hand Knob	Adjusts swivel feet clamps at trailing edge of aileron.
155	L-Pin	Pins locator (detail 159) in extended or retracted position.
158	Hand Knob	Secures or loosens locators (details 16, 17, or 18) at trailing edge of aileron.
159	Locator	Supports and locates swivel feet clamps at trailing edge of aileron.
161	Contour Board	Locates and inspects forward upper mold line of aileron at inboard end.
163	Contour Board	Locates and inspects aft upper mold line of aileron at inboard end.
165	Contour Board	Locates and inspects upper mold line of aileron at outboard end.
228, 229	Angle	Locates and supports inboard upper contour boards for attachment.

Figure 3. Preparation of Maintenance Fixture (Sheet 6)

6. **LOADING AILERON ASSEMBLY INTO MAINTENANCE FIXTURE.** See figure 4. Do Preparation of Maintenance Fixture, this WP, before doing procedures below. Three conditions of the aileron assembly may exist: 1) with bushings/bearing, 2) with damaged bushings/bearing, or 3) without hinge half/rib assembly. Refer to the correct procedures as required.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bearing Removal and Installation Tool Set	74D110166-1001
Bushing Removal, Installation, and Reaming Tool Set	74A110174-1001

### Materials Required

None

#### 7. Aileron Assembly With Actuator Attach and Hinge Bushings.

a. Prepare aileron for loading by removing leading edge skin, if replacement of skin is required. Skin removal shall be done on a work surface.

b. Lower aileron assembly into maintenance fixture, resting lower mold line on inboard lower contour boards (details 160 and 162) and outboard lower contour board (detail 164), see sheet 1 of figure.

c. Install subassembly A on frame (detail 11) using L-pins (detail 132) and hand knob (detail 130), view A.

d. Install locator (detail 13) on frame (detail 11) using L-pins (detail 114) and hand knobs (detail 113), view B.

e. Slide locators (details 16, 17, and 18) to extended position against trailing edge of aileron, view C.

f. Place thickness gage (detail 105) between locator (detail 122) and outboard side of 74A170604 rib, view B.

g. Install pin (detail 128) at outboard hinge, view A.

h. Insert pin (detail 118) at inboard hinge, view B.

i. Insert pin (detail 103) through locator (detail 13), actuator attach lug, and into bushing (detail 109), view B.

j. Rotate fixture to get aileron perpendicular to floor. Inspect pins (details 103, 118, and 128) for free rotation.

#### 8. Aileron Assembly With Damaged Actuator Attach and Hinge Bushings.

a. Prepare aileron for loading by removing leading edge skin, if replacement of skin is required. Skin removal shall be done on a work surface.

b. Remove damaged bushings, two places, from 74A110604 rib assembly using details of 74A110174-1001 tool set (A1-F18AC-SRM-200, WP004 37). Do bushing removal on a work surface.

c. Remove damaged bearing from 74A110762 hinge half using details of 74A110166-1001 tool set (A1-F18AC-SRM-200, WP004 38). Do bushing removal on a work surface.

d. Lower aileron assembly into maintenance fixture, resting lower mold line on inboard lower contour boards (details 160 and 162) and outboard lower contour board (detail 164), see sheet 1 of figure.

e. Install subassembly A on frame (detail 11) using L-pins (detail 132) and hand knob (detail 130), view A.

f. Place thickness gage (detail 105) between locator (detail 122) and outboard side of 74A170604 rib, view B.

g. Install pin (detail 128) at outboard hinge, view A.

h. Insert pin (detail 118) at inboard hinge, view B.

i. Adjust aileron assembly for up/down position by loosening hand knob (detail 195) and moving block (detail 21), four places, to set required gap between lower contour boards (details 160, 162, or 164), view G. Use subassembly D to set correct gap, view F.

j. Rotate fixture to get aileron perpendicular to floor. Inspect pins (details 118, and 128) for free rotation.

k. Install upper inboard and outboard contour boards (details 161, 163, and 165) per figure 3, views A and B.

l. Slide locators (details 16, 17, and 18) to extended position against trailing edge of aileron, figure 4, view C.

m. Tighten hand knobs (detail 153) to secure trailing edge of aileron in place, view C.

n. Inspect inboard and outboard pins (details 118 and 128) for free rotation. Adjust clamping details as required to make sure pins rotate and aileron is not deflected.

## 9. Aileron Assembly Without Rib Assembly or Hinge Half.

a. Prepare aileron for loading by removing leading edge skin, if replacement of skin is required. Skin removal shall be done on a work surface.

b. Remove damaged 74A170762 hinge half and 74A170604 rib assembly from aileron assembly. Damaged structure shall be removed on a work surface.

c. Lower aileron assembly into maintenance fixture, resting lower mold line on inboard lower contour

boards (details 160 and 162) and outboard lower contour board (detail 164), see sheet 1 of figure.

d. Install locators (details 166 and 167) on contour boards using L-pin (detail 203) and hand knob (detail 205), views D and E.

e. Locate aileron assembly in forward/aft position by contacting aileron spar with locating screw (detail 206), views D and E.

f. Locate aileron assembly in inboard/outboard position by adjusting aileron to get inboard edge flush with scribe bar (detail 224) held against contour boards (details 161 and 163), view F.

g. Adjust aileron assembly for up/down position by loosening hand knob (detail 195) and moving block (detail 21), four places, to set required gap between lower contour boards (details 160, 162, or 164), view G. Use subassembly D to set correct gap, view F.

h. Slide locators (details 16, 17, and 18) to extended position against trailing edge of aileron, view C.

i. Tighten hand knobs (detail 153) to secure trailing edge of aileron in place, view C.

j. Clamp aileron assembly as required to secure in maintenance fixture.



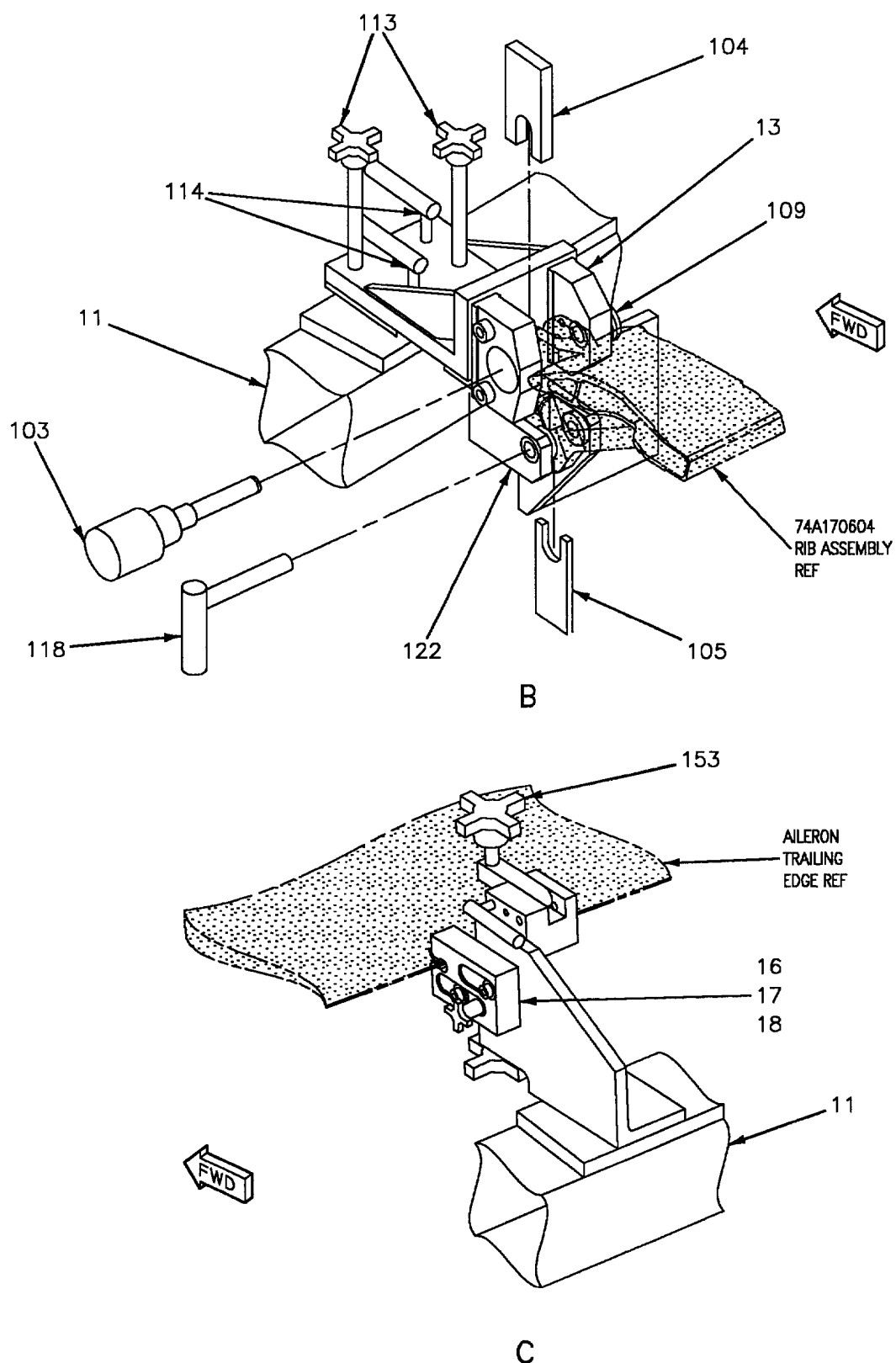


Figure 4. Loading Aileron Assembly into Maintenance Fixture (Sheet 2)



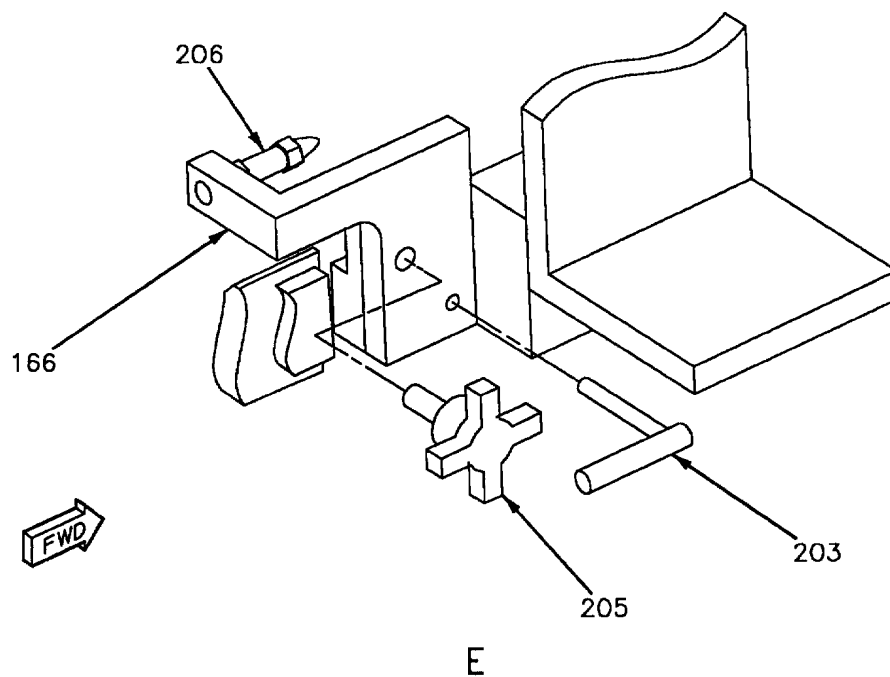
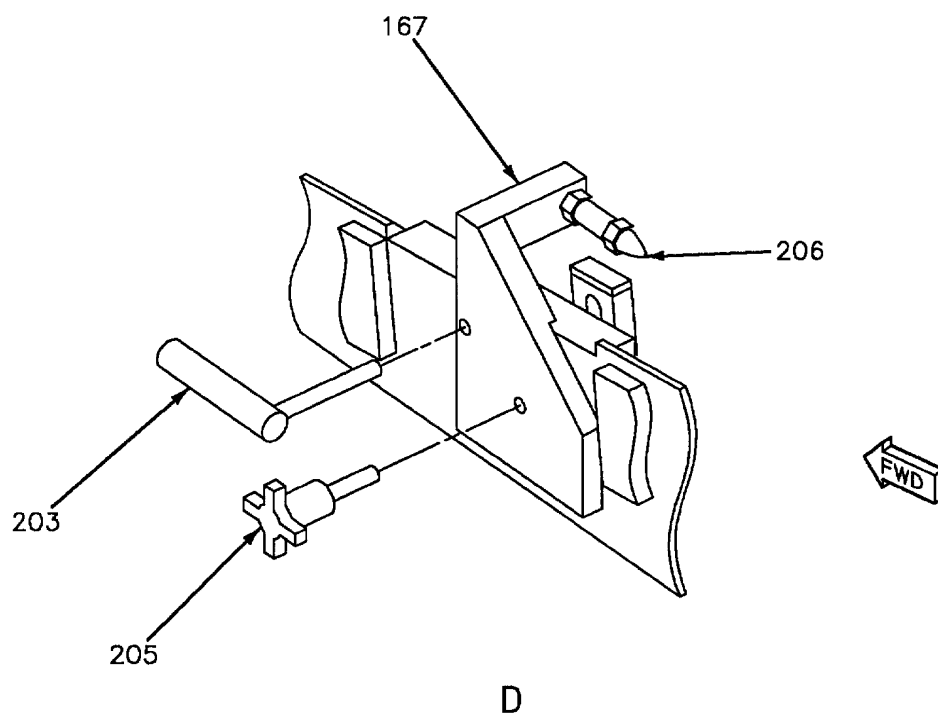


Figure 4. Loading Aileron Assembly into Maintenance Fixture (Sheet 3)

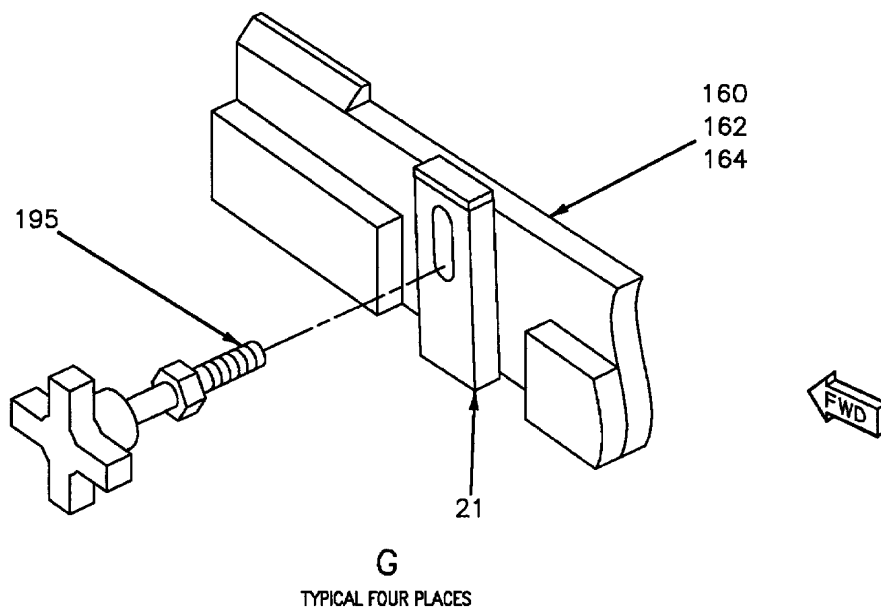
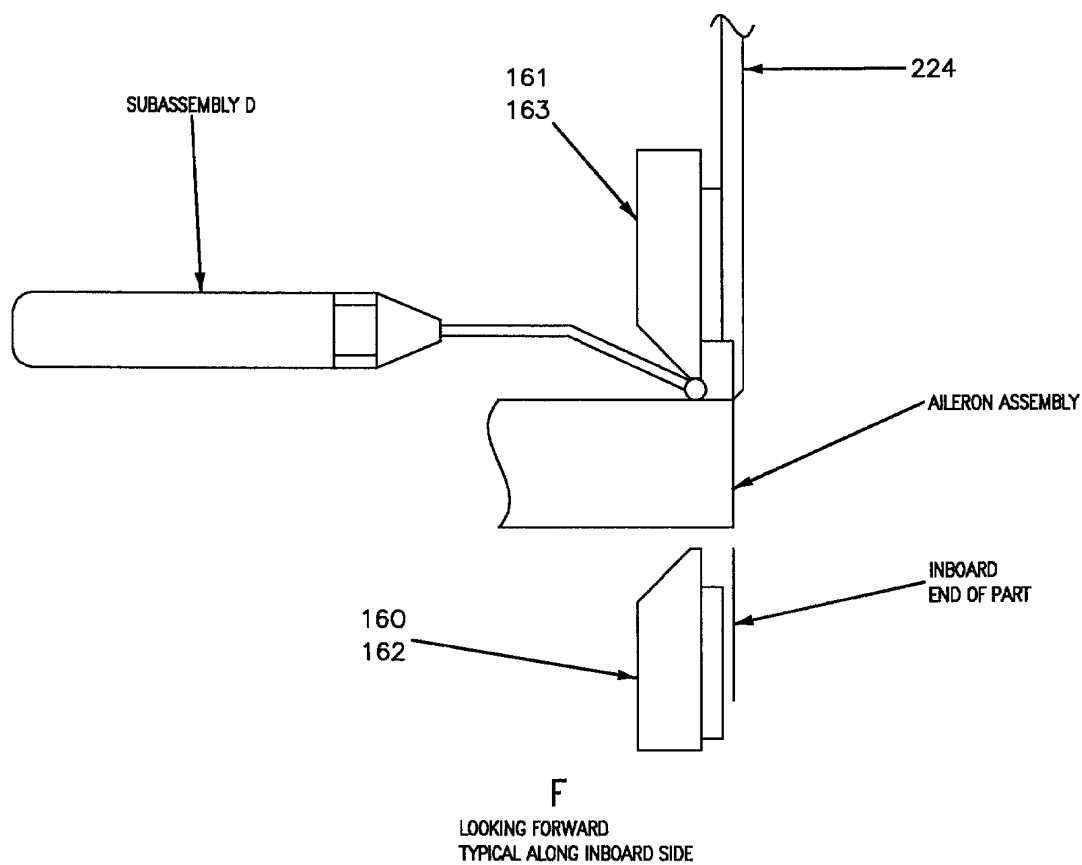


Figure 4. Loading Aileron Assembly into Maintenance Fixture (Sheet 4)

Detail No.	Name	Function
Subassembly A	Hinge Locator	Locates position of 74A170762 hinge half.
Subassembly D	Thickness Gage	Sets distance between aileron and contour boards.
11	Frame	Main support for holding details.
13	Locator	Locates upper hinge point of 74A170604 rib assembly.
16	Locator	Locates and supports aileron trailing edge at outboard end.
17	Locator	Locates and supports aileron trailing edge at center of trailing edge.
18	Locator	Locates and supports aileron trailing edge at inboard end.
21	Block	Supports aileron at lower mold line for up/down position.
103	Pin	Locates upper hinge point of 74A170604 rib assembly to fixture.
104, 105	Thickness Gage	Locates 74A170604 rib assembly in inboard/outboard position.
109	Bushing	Inserts in detail 13 to locate pin.
114	L-Pin	Locates and attaches various details to others.
113	Hand Knob	Secures detail 13 to frame.
118	Pin	Locates lower hinge point of 74A170604 rib assembly to fixture.
122	Locator	Locates lower hinge point of 74A170604 rib assembly.
128	Pin	Locates 74A170762 hinge half to fixture.
130	Hand Knob	Secures various details to others.
132	L-Pin	Locates and attaches subassembly A to frame.
153	Hand Knob	Adjusts swivel feet clamps at trailing edge of aileron.
155	L-Pin	Pins locator (detail 159) in extended or retracted position.
158	Hand Knob	Secures or loosens locators (details 16, 17, or 18) at trailing edge of aileron.
159	Locator	Supports and locates swivel feet clamps at trailing edge of aileron.

Figure 4. Loading Aileron Assembly into Maintenance Fixture (Sheet 5)

Detail No.	Name	Function
160, 162	Lower Inboard Contour Boards	Supports aileron at inboard end.
161	Contour Board	Locates and inspects forward upper mold line of aileron at inboard end.
163	Contour Board	Locates and inspects aft upper mold line of aileron at inboard
164	Lower Outboard Contour Board	Supports aileron at outboard end.
165	Contour Board	Locates and inspects upper mold line of aileron at outboard end.
166, 167	Locator	Locates details to position aileron in maintenance fixture.
195	Hand Knob	Adjusts block (detail 21) for aileron up/down position.
203	L-Pin	Locates and attaches details 166 and 167.
205	Hand Knob	Secures details 166 and 167 in place.
206	Locating Screw	Locates aileron assembly in forward/aft position.
224	Scribe Bar	Locates assembly in inboard/outboard position.

Figure 4. Loading Aileron Assembly into Maintenance Fixture (Sheet 6)

10. ALIGNMENT AND TWIST INSPECTION. See figure 5.

## Support Equipment Required

None

## Materials Required

None

a. Load aileron assembly into maintenance fixture per Loading Aileron Assembly into Maintenance Fixture, this WP.

b. Install upper outboard contour board (detail 165) on frame (detail 11) using L-pins (detail 114) and hand knobs (detail 130), view A.

c. Install upper inboard contour boards (details 161 and 163) on angles (details 228 and 229) using L-pins (detail 114) and hand knobs (detail 130), view B.

d. Secure aileron assembly in place by sliding blocks (detail 21) snug against lower mold line of aileron. Tighten hand knobs (detail 195) to secure blocks in place, view D.

e. Inspect forward lug pins for free rotation. Adjust clamps, if required, to free pins.

f. Inspect for mold line variations using subassembly D between mold line and contour boards, view C. Record any variations for engineering disposition.

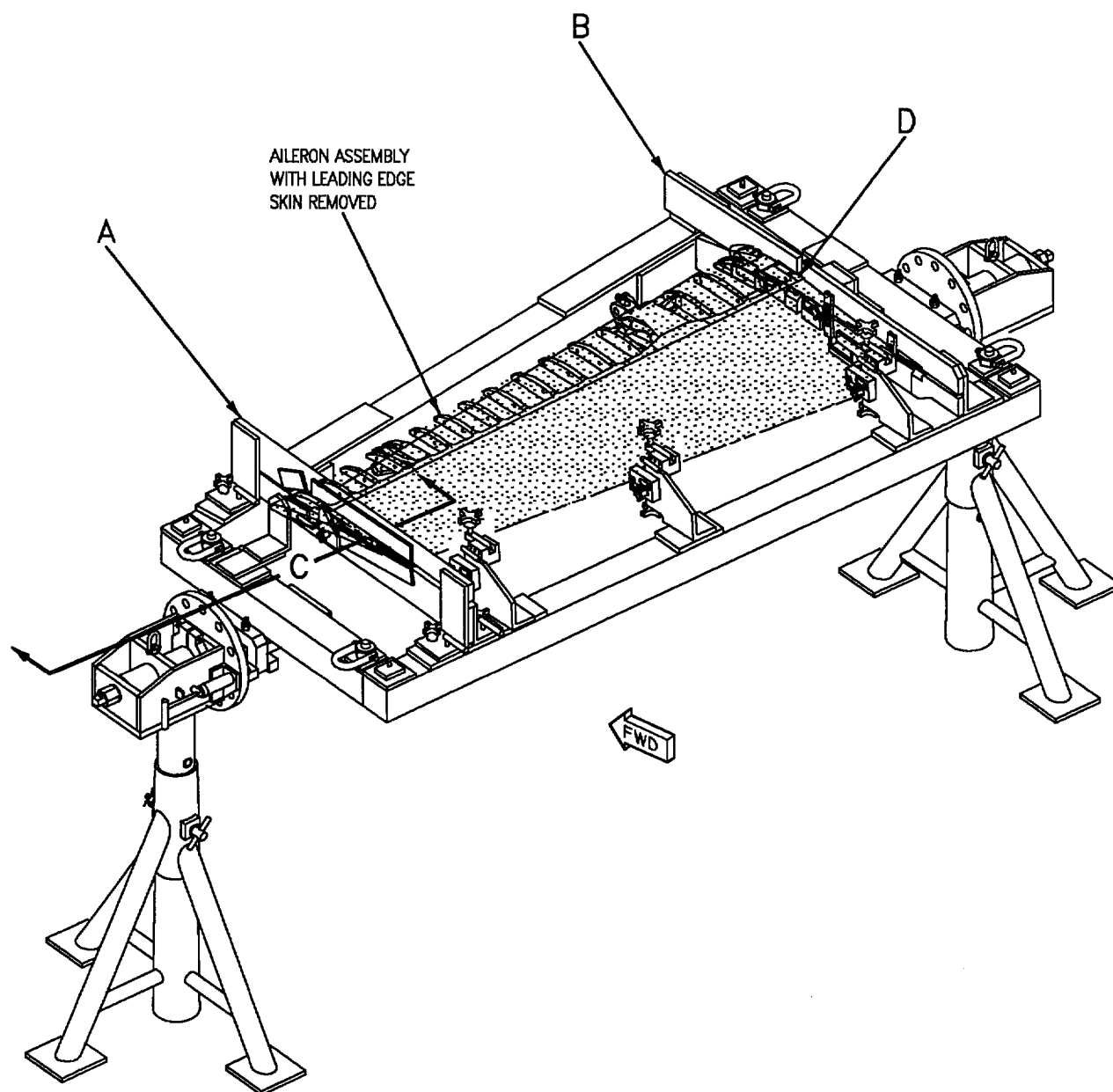
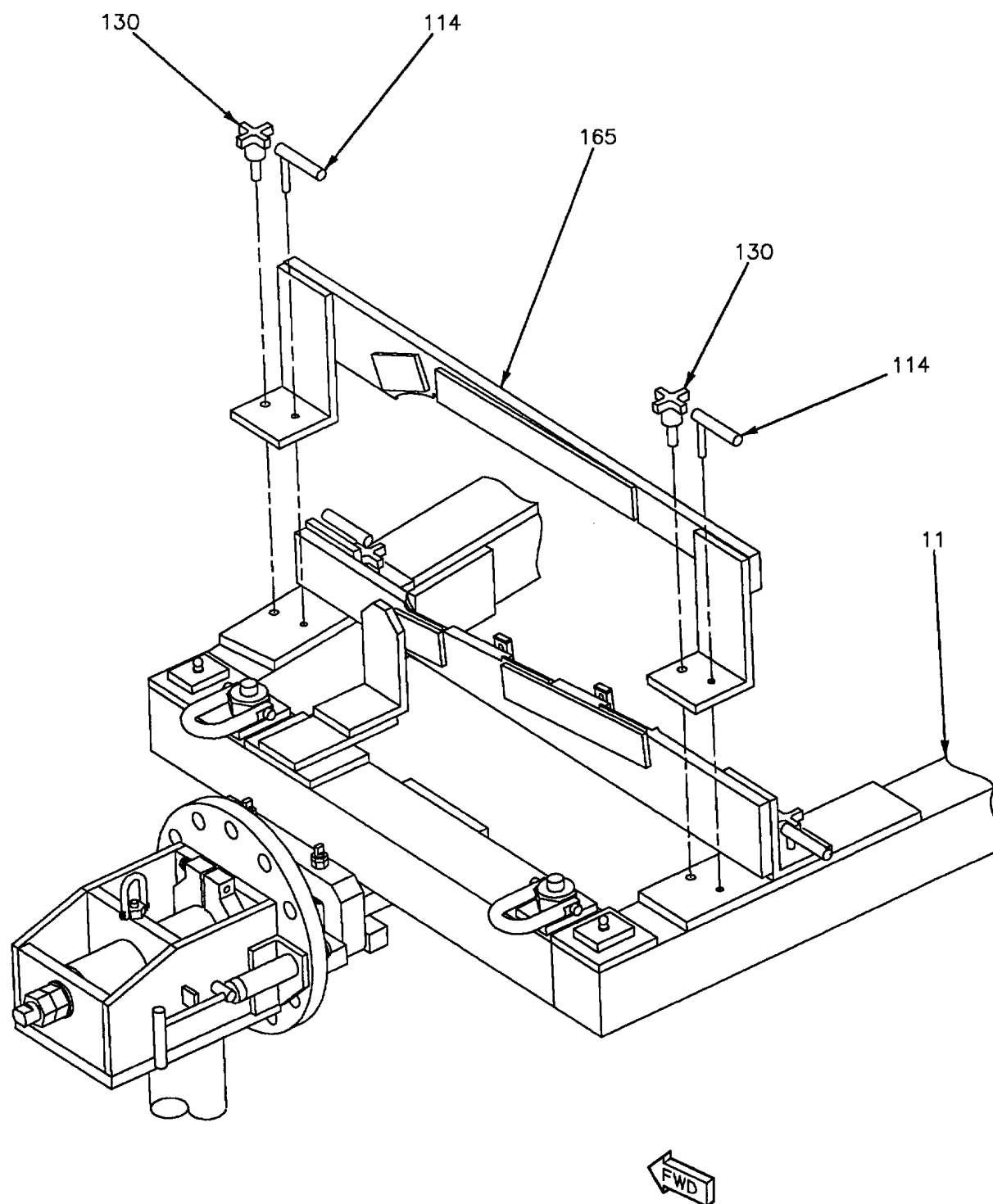
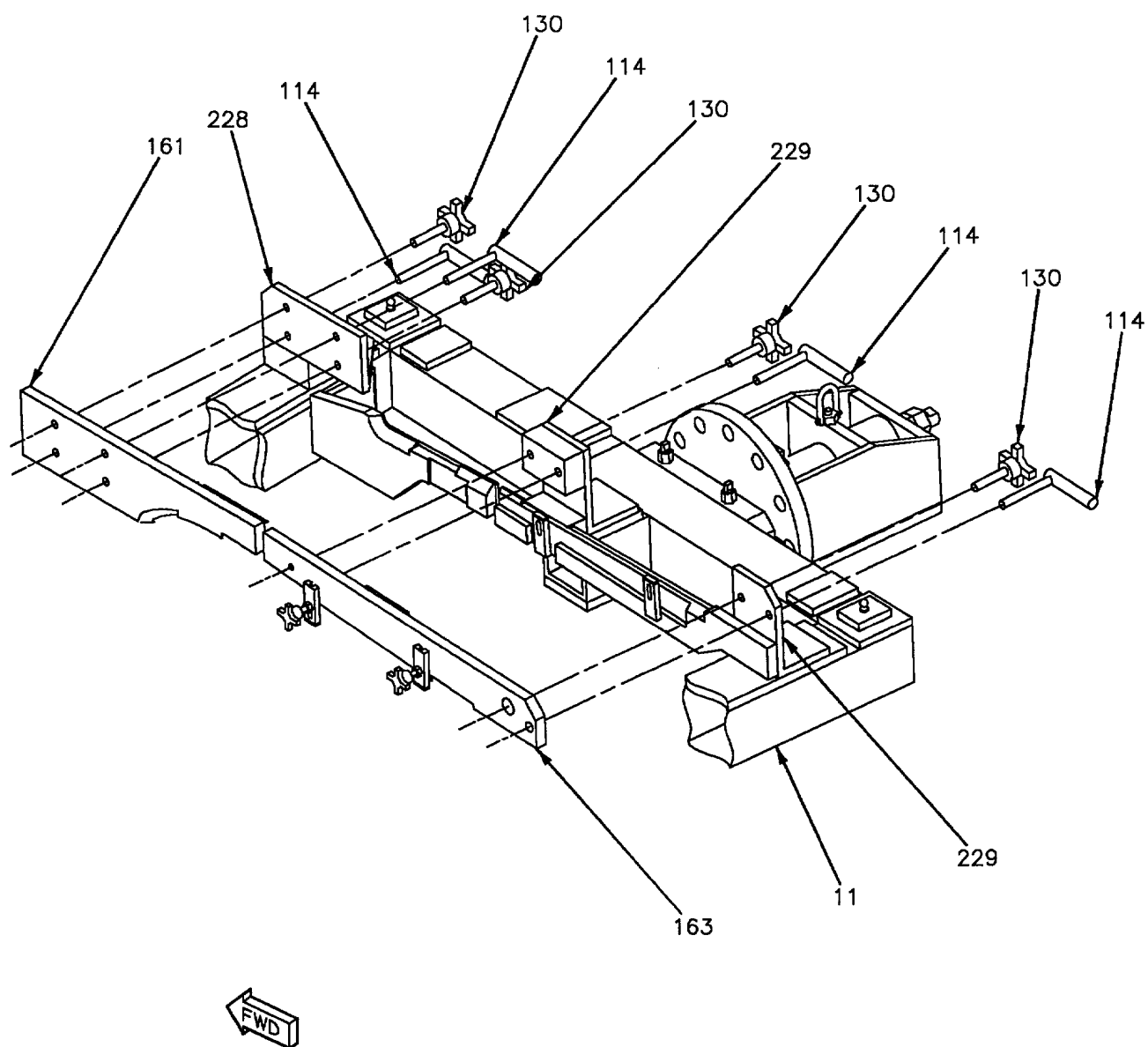


Figure 5. Alignment and Twist Inspection (Sheet 1)



A

Figure 5. Alignment and Twist Inspection (Sheet 2)



B

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Figure 5. Alignment and Twist Inspection (Sheet 3)



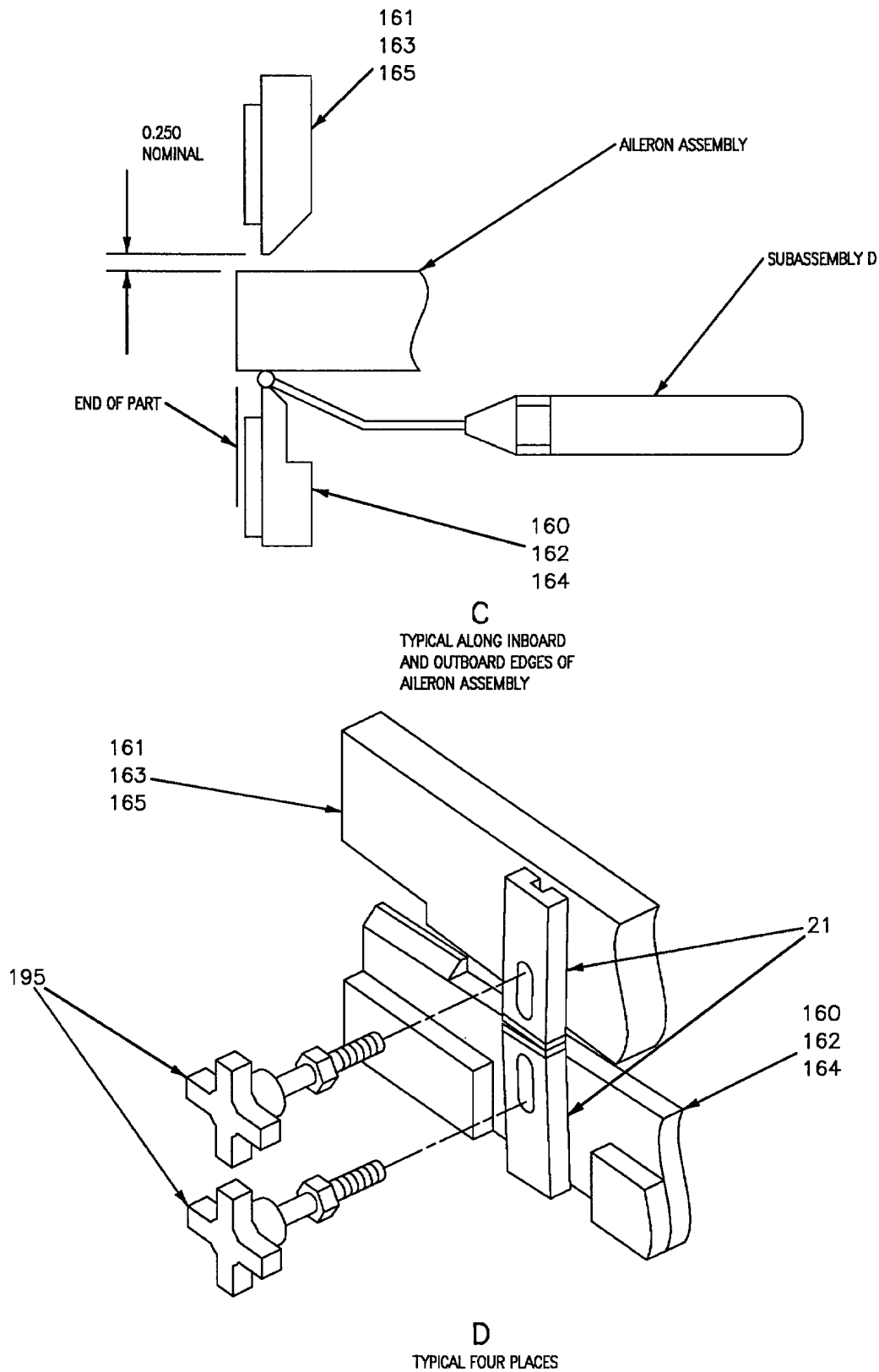


Figure 5. Alignment and Twist Inspection (Sheet 4)

Detail No.	Name	Function
Subassembly D	Thickness Gage	Sets distance between aileron and contour boards.
11	Frame	Main support for holding details.
21	Block	Supports aileron at lower mold line for up/down position.
114	L-Pin	Locates and attaches various details to others.
130	Hand Knob	Secures various details to others.
160, 162	Lower Inboard Contour Boards	Supports aileron at inboard end.
161	Contour Board	Locates and inspects forward upper mold line of aileron at inboard end.
163	Contour Board	Locates and inspects aft upper mold line of aileron at inboard end.
164	Lower Outboard Contour Board	Supports aileron at outboard end.
165	Contour Board	Locates and inspects upper mold line of aileron at outboard end.
195	Hand Knob	Adjusts block (detail 21) for aileron up/down position.
228, 229	Angle	Locates and supports inboard upper contour boards for attachment.

Figure 5. Alignment and Twist Inspection (Sheet 5)

# 11. BUSHING REPLACEMENT AT 74A170604 RIB ASSEMBLY. See figure 6.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Rack Feed Drilling Machine, 1000 RPM	74D110312-1001
Repair Kit, Aileron	RE374170004

## Materials Required

Nomenclature	Specification or Part Number
Bushing, First Oversize, Inboard Lug	ST4M130-10031
Bushing, First Oversize, Outboard Lug	ST4M130-12029
Bushing, Nominal Size, Inboard Lug	74B170051-2001
Bushing, Nominal Size, Outboard Lug	ST4M130-12014

### NOTE

If only one bushing is damaged, both bushings should be replaced, allowing in-line reaming of new bushings.

a. Remove bushings from 74A110604 rib assembly using details of 74D110174-1001 tool set. Do bushing removal procedures (A1-F18AC-SRM-200, WP004 37).

### NOTE

First oversize hole is  $0.9531 \pm 0.0005$  inch diameter in outboard lug and  $0.8281 \pm 0.0005$  inch diameter in inboard lug.

b. Inspect holes in 74A170604 rib assembly for nominal dimension of  $0.9375 \pm 0.0005$  inch diameter in outboard lug and  $0.8125 \pm 0.0005$  inch diameter in inboard lug. If nominal dimension exists, do step c. If first oversize holes are required, do step d.

c. Nominal size holes:

(1) Apply chemical treatment to 74A170604 inboard/outboard lug hole diameters (A1-F18AC-SRM-500, WP008 00).

(2) Install new 74B170051-2001 bushing into inboard lug and ST4M130-12014 bushing into outboard lug using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

### NOTE

Omit steps a, b, and c of paragraph 8 when loading aileron into fixture.

(3) Install aileron into fixture, paragraph 8, this WP. Make sure aileron is firmly clamped in place.

(4) Install bushing (detail 211) into locator (detail 13) at inboard lug location, view A.

### NOTE

RE374170004-104, 105, and 106 bushings are part of RE374170004 repair kit.

(5) Prepare 74D110312-1001 drilling machine. Do equipment setup (A1-F18AC-SRM-200, WP004 17).

(6) Attach RE374170004-105 bushing onto drilling machine nose piece.

### NOTE

SPT4RE374170004TD, SPT6RE374170004TD, and SPT6RE374170004TD reamers are part of RE374170004 repair kit.

(7) Attach SPT5RE374170004TD reamer to 74D110312-1001 drilling machine.

(8) Locate drilling machine by inserting RE374170004-105 bushing into locator (detail 13), view B.

(9) Lock drilling machine in position by turning RE374170004-105 bushing into lock screw (detail 111), view B.

(10) Power ream  $0.8095$  inch diameter hole into outboard bushing, view B.

(11) Remove drilling machine and RE374170004-105 bushing.

(12) Attach RE374170004-104 bushing onto drilling machine nose piece.

(13) Attach SPT4RE374170004TD reamer to 74D110312-1001 drilling machine.

(14) Locate drilling machine by inserting RE374170004-104 bushing into locator (detail 13), view B.

(15) Lock drilling machine in position by turning RE374170004-104 bushing into lock screw (detail 111), view B.

(16) Power ream 0.6232 inch diameter hole into inboard bushing, view B.

(17) Remove drilling machine and RE374170004-104 bushing.

(18) Install RE374170004-106 bushing into locator (detail 13), view B.

(19) Insert SPT6RE374170004TD step reamer into RE374170004-106 bushing.

(20) Hand ream outboard bushing to 0.8125 inch diameter and inboard bushing to 0.6250 inch diameter.

(21) Remove step reamer.

(22) Inspect inboard bushing hole for nominal dimension of 0.6250 +0.0010 -0.0000 inch diameter. Inspect outboard bushing hole for nominal dimension of 0.8125 +0.0000 -0.0005 inch diameter.

d. First oversize hole:

## NOTE

Omit steps a, b, and c of paragraph 8 when loading aileron into fixture.

(1) Install aileron into fixture, paragraph 8, this WP. Make sure aileron is firmly clamped in place.

(2) Install bushing (detail 109) into locator (detail 13) at inboard lug location, views A and C.

## NOTE

RE374170004-101, 102, 103, 104, 105, and 106 bushings are part of RE374170004 repair kit.

(3) Prepare 74D110312-1001 drilling machine. Do equipment setup (A1-F18AC-SRM-200, WP004 17).

(4) Attach RE374170004-102 bushing onto drilling machine nose piece.

## NOTE

SPTRE374170004TD, SPT2RE374170004TD, SPT3RE374170004TD, SPT4RE374170004TD, SPT5RE374170004TD, and SPT6RE374170004TD reamers are part of RE374170004 repair kit.

(5) Attach SPT2RE374170004TD reamer to 74D110312-1001 drilling machine.

(6) Locate drilling machine by inserting RE374170004-102 bushing into locator (detail 13), view C.

(7) Lock drilling machine in position by turning RE374170004-102 bushing into lock screw (detail 111), view C.

(8) Power ream 0.9500 inch diameter hole into 74A170604 outboard lug, view C.

(9) Remove drilling machine and RE374170004-102 bushing.

(10) Attach RE374170004-101 bushing onto drilling machine nose piece.

(11) Attach SPTRE374170004TD reamer to 74D110312-1001 drilling machine.

(12) Locate drilling machine by inserting RE374170004-101 bushing into locator (detail 13), view C.

(13) Lock drilling machine in position by turning RE374170004-101 bushing into lock screw (detail 111), view C.

(14) Power ream 0.8251 inch diameter hole into 74A170604 inboard lug, view C.

(15) Remove drilling machine and RE374170004-101 bushing.

(16) Install RE374170004-103 bushing into locator (detail 13), views A and C.

(17) Insert SPT3RE374170004TD step reamer into RE374170004-103 bushing.

(18) Hand ream 74A170604 outboard lug to 0.9531 inch diameter and inboard lug to 0.8281 inch diameter.

(19) Remove aileron from fixture.

(20) Inspect 74A170604 inboard lug for first oversize hole dimension of  $0.8281 \pm 0.0005$  inch diameter. Inspect 74A170604 outboard lug for first oversize hole dimension of  $0.9531 \pm 0.0005$  inch diameter.

(21) Apply chemical treatment to 74A170604 inboard/outboard hole diameters (A1-F18AC-SRM-500, WP008 00).

(22) Install new ST4M130 bushings into 74A170604 inboard/outboard lugs using details of 74D110174-1001 tool set. Do bushing installation procedures (A1-F18AC-SRM-200, WP004 37).

#### NOTE

Omit steps a, b, and c of paragraph 8 when loading aileron into fixture.

(23) Reinstall aileron into fixture, paragraph 8, this WP. Make sure aileron is firmly clamped in place.

(24) Install bushing (detail 211) into locator (detail 13) at inboard lug location, view A.

(25) Attach RE374170004-105 bushing onto drilling machine nose piece.

(26) Attach SPT5RE374170004TD reamer to 74D110312-1001 drilling machine.

(27) Locate drilling machine by inserting RE374170004-105 bushing into locator (detail 13), view B.

(28) Lock drilling machine in position by turning RE374170004-105 bushing into lockscrew (detail 111), view B.

(29) Power ream 0.8095 inch diameter hole into outboard bushing, view B.

(30) Remove drilling machine and RE374170004-105 bushing.

(31) Attach RE374170004-104 bushing onto drilling machine nose piece.

(32) Attach SPT4RE374170004TD reamer to 74D110312-1001 drilling machine.

(33) Locate drilling machine by inserting RE374170004-104 bushing into locator (detail 13), view B.

(34) Lock drilling machine in position by turning RE374170004-104 bushing into lockscrew (detail 111), view B.

(35) Power ream 0.6232 inch diameter hole into inboard bushing, view B.

(36) Remove drilling machine and RE374170004-104 bushing.

(37) Install RE374170004-106 bushing into locator (detail 13), view B.

(38) Insert SPT6RE374170004TD step reamer into RE374170004-106 bushing.

(39) Hand ream outboard bushing to 0.8125 inch diameter and inboard bushing to 0.6250 inch diameter.

(40) Remove step reamer.

(41) Inspect inboard bushing hole for nominal dimension of  $0.6250 +0.0010 -0.0000$  inch diameter. Inspect outboard bushing hole for nominal dimension of  $0.8125 +0.0000 -0.0005$  inch diameter.

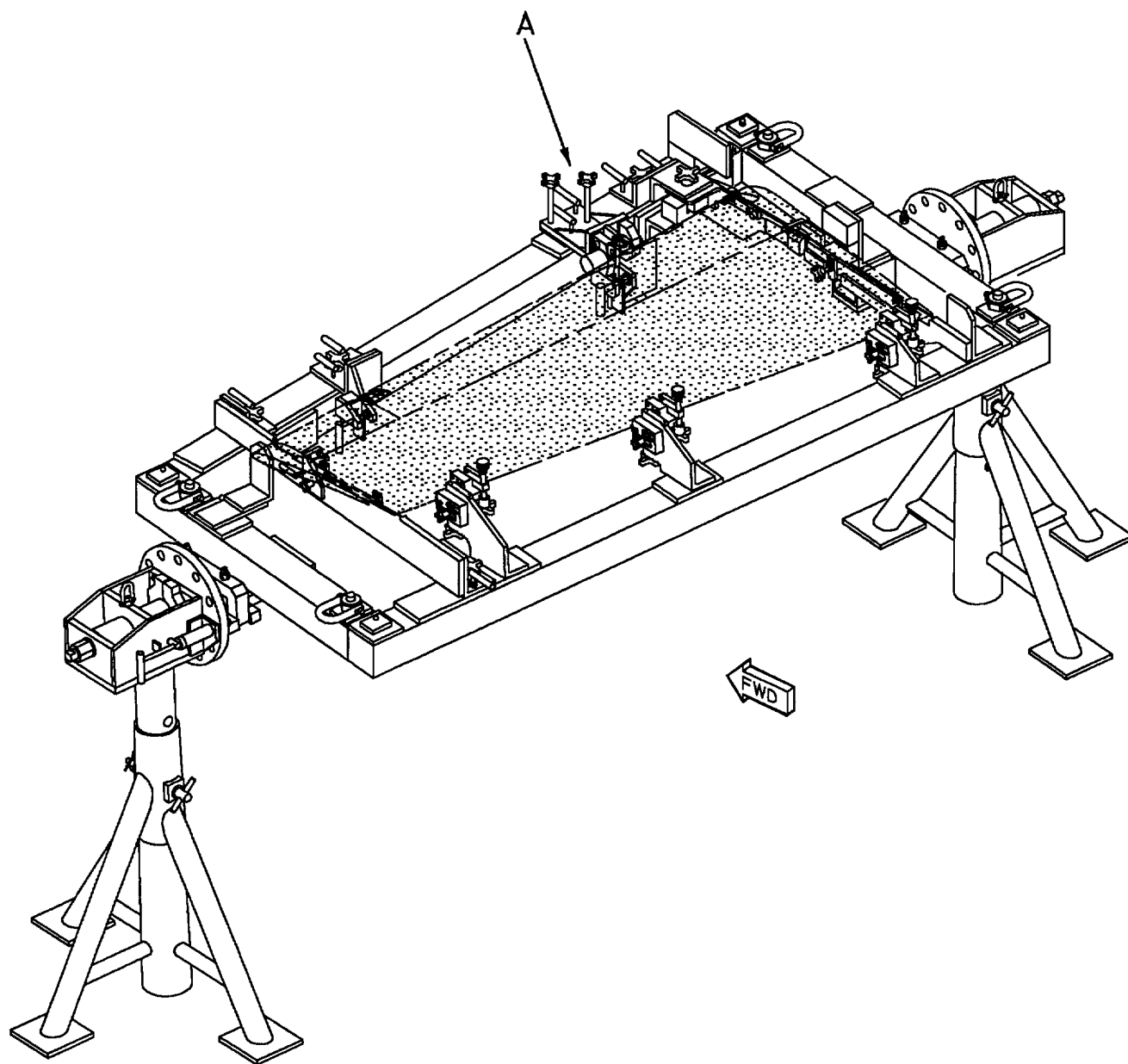


Figure 6. Bushing Replacement at 74A170604 Rib Assembly (Sheet 1)

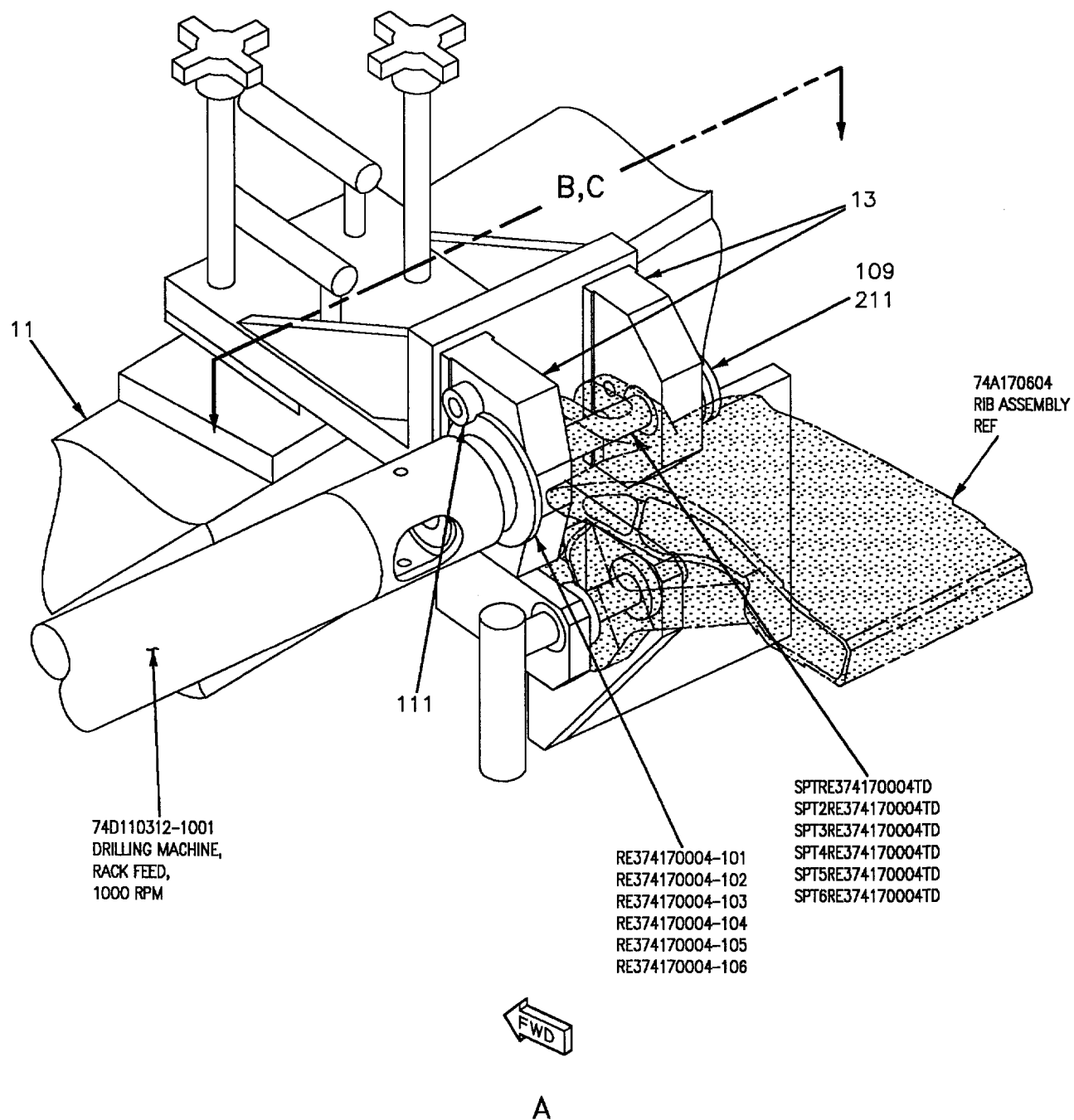


Figure 6. Bushing Replacement at 74A170604 Rib Assembly (Sheet 2)

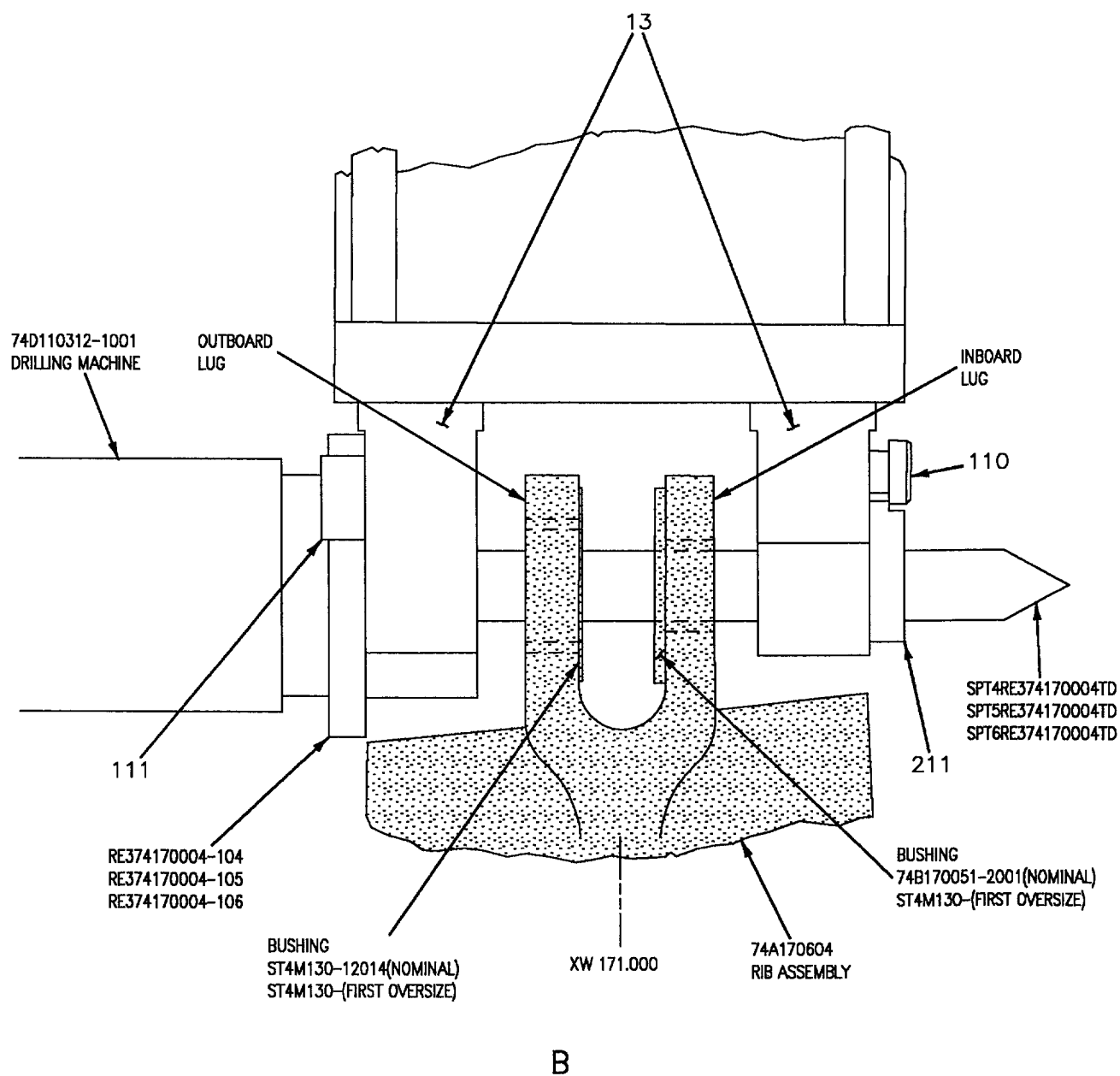


Figure 6. Bushing Replacement at 74A170604 Rib Assembly (Sheet 3)



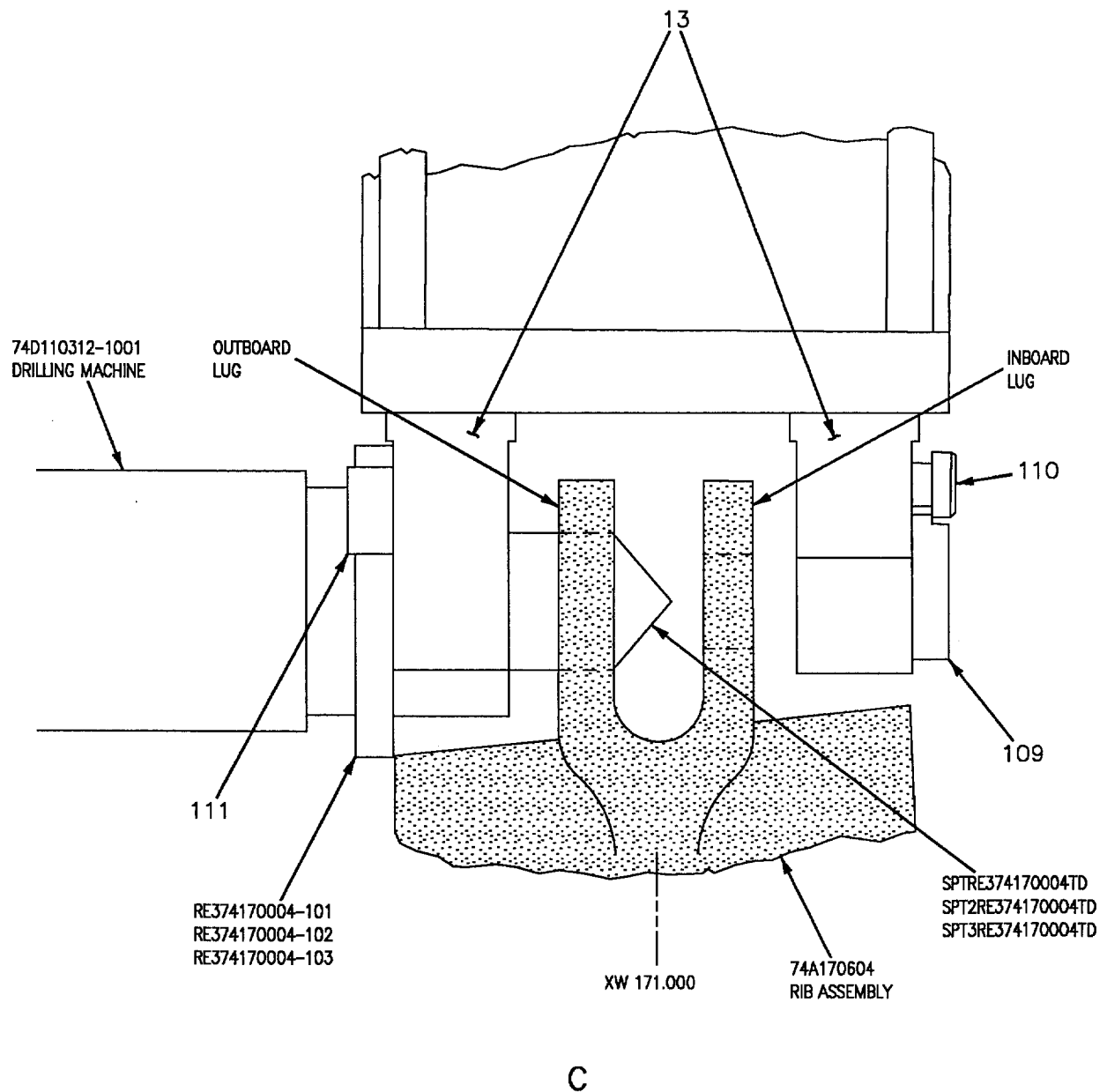


Figure 6. Bushing Replacement at 74A170604 Rib Assembly (Sheet 4)

Detail No.	Name	Function
11	Frame	Main support for holding details.
13	Locator	Locates 74A170604 upper hinge point holes.
109	Bushing	Used when reaming 74A170604 lugs first oversize.
110	Screw	Secures bushing (detail 109) to locator (detail 13).
111	Lockscrew	Secures drill motor and bushing to locator (detail 13).
211	Bushing	Used when reaming nominal size hole in bushings.

Figure 6. Bushing Replacement At 74A170604 Rib Assembly (Sheet 5)

## ORGANIZATIONAL, INTERMEDIATE AND DEPOT MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING SKINS

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Hole Locating Plate Set RE174150824 .....	WP011 01
Strain Gages .....	WP023 00
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Outer Wing Torque Box Skin, Fold Rib, and Tip Areas Delaminations .....	WP024 01
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Fasteners .....	WP004 06
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Graphite Epoxy Skin Class I Damage Repair .....	WP008 00
Graphite Epoxy Skin Class III Damage Repair .....	WP010 00
Graphite Epoxy Skin Class IV Damage Repair .....	WP011 00
Graphite Epoxy Skin Class V Damage Repair .....	WP011 01
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Land .....	WP036 00
Blending .....	WP038 00
Aircraft Weapons System Cleaning and Corrosion Control .....	NAVAIR 01-1A-509

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## Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 127	July 89	Additional Drain Hole in L/R Outer/Wing Lower Skin (RAMEC NORIS-23-88)	1 Mar 90	U.S. Navy Prepared

## 1. COMPOSITE SKIN.

affect on structural integrity, flight characteristics, or safety of the aircraft.

2. **DAMAGE EVALUATION.** See figure 1. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

5. Skin Surface Damage and Dent, Class I Damage. See figure 4, Section A. Class I damage is skin damage which does not exceed the limits listed below:

a. Cuts, scratches, pits, erosion, or abrasions.

(1) Depth is no more than 0.005 inch.

(2) No longer than 5 inches.

b. Dents.

(1) Depth is no more than 0.015 inch.

(2) There is no skin ply delaminations related to the dent.

(3) Fiber damage is no more than 0.005 inch depth.

(4) No more than three dents in a 5 inch diameter circle.

(5) Distance between dents is at least four times the diameter of the largest dent. Measure distance between dents edge to edge.

3. **Negligible Damage.** See figure 3. Negligible damage may be allowed to exist as is. Type and limits are as follows:

a. Delaminations between skin plies. See Section A. Determine size and location of delamination (A1-F18AC-SRM-300, WP024 01).

(1) Delaminations do not extend to edge of skin.

(2) Delaminations are at least 0.021 below skin surface.

(3) Diameter is 0.500 inch or less.

(4) Distance between delaminations is at least four times the diameter of the largest delamination.

(5) No more than three delaminations in a 12 inch diameter circle.

4. **Repairable Damage.** Repairable damage is damage that can be permanently repaired with no adverse

6. Fiber Damage Around Fastener Holes and Surface Rips, Class III Damage. See figure 4,

sections B and C. Class III damage is skin damage which does not exceed the limits listed below:

a. Surface ply rips.

- (1) Depth is no more than 0.010 inch.
- (2) Width is no more than 0.25 inch.
- (3) No longer than 2.0 inches.

b. Loose or missing fibers or skin abrasions around fastener holes and/or countersinks.

- (1) Depth is no more than 0.010 inch.
- (2) Width is no more than 0.25 inch.
- (3) No longer than 2.0 inches.

7. Skin Penetration, Class IV Damage. See figure 4, section D. Class IV damage is skin which does not exceed the limits listed.

a. Damage must be in a repair zone, figure 2.

b. Mark damage area determined by NDI (A1-F18AC-SRM-300, WP024 01) to the smallest diameter of 1.25 inch, 2.00 inch, 3.00 inch, or 4.00 inch as shown in figure 4, section E.

c. Distance between repairs is more than six times the diameter of the damage cut-out.

d. Edge of damage must be located within minimum dimension as shown on figure 4, section E.

8. Delaminations, Class V Damage. See figure 4, sections F, G, and H. Class V damage is delamination damage which does not exceed the limits listed below:

a. Delamination not open to edge, see section F.

- (1) Must not be over a splice plate.
- (2) Damage must be able to be located within a 3 inch diameter circle.
- (3) Multiple delaminations located within a 3 inch diameter circle shall be considered as one damage.
- (4) Minimum spacing measured edge to edge between damages shall be four diameters of the largest damage.

b. Delamination open to edge, see sections G and H.

- (1) Must not be over a splice plate.
- (2) Damage must not be over 0.500 inch.

9. **REPAIRS.** Class I, III, and V are organizational maintenance. Class IV is intermediate maintenance. Damage can be repaired by the procedures referenced below. Any repairs and weight limitations not listed below require engineering disposition.

**WARNING**

Installation of an overweight repair could cause failure of the wing, resulting in loss of life or injury. Engineering approval of repairs on the wing is required.

a. Repair class I damage (A1-F18AC-SRM-250, WP008 00).

b. Repair class III damage (A1-F18AC-SRM-250, WP010 00).

c. Select patch per paragraph 10. Repair class IV damage (A1-F18AC-SRM-250, WP011 00).

d. Repair class V damage (A1-F18AC-SRM-250, WP011 01).

10. **Patch Selection.** Select applicable patch as follows:

**NOTE**

Patches are part of 74K000006 bolted repair kit (A1-F18AC-SRM-250, WP011 00).

- a. For 1.25 inch diameter damage, use -1001 patch.
- b. For 2.00 inch diameter damage, use -1003 patch.
- c. For 3.00 inch diameter damage, use -1005 patch.
- d. For 4.00 inch diameter damage, use -1007 patch.

**11. METAL SKIN.**

**12. DAMAGE EVALUATION.** See figures 1 and 2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits listed below require a depot engineering disposition.

1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits listed below require a depot engineering disposition.

**13. Negligible Damage.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

**14. Repairable Damage.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

**NOTE**

The limits in table 2 apply after blending the damage.

a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fasteners diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, overstructure. Only one repair per land.

e. Dents exceeding the limits in table 1 must be repaired.

**15. REPAIRS.** Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repair type definitions are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

**WARNING**

Installation of an overweight repair could cause failure of the wing, resulting in loss of life or injury. Engineering approval of repairs on the wing is required.

**16. Permanent Repairs.**

**17. Scratches, Nicks Gouges, or Corrosion.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair aluminum sheet as below. Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

a. Scratches - make crack or edge repair.

b. Nicks, gouges, or corrosion - make hole or edge repair.

**18. Cracks.**

a. In repair zones A2 and A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Stop drill crack in repair zone A2 or cut out crack in smallest diameter circle in repair zone A4.

(2) In repair zone A2, install lap patch or install a type two flush or lap patch in repair zone A4.

(3) Refinish repair area (A1-F18AC-SRM -500, WP027 00).

b. In repair zone B3, repair cracks free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A2, A3, and A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A2, A3, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 19. Holes.

a. In repair zones A2 and A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A2, install a type one flush or lap patch. In repair zone A4, install type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair holes free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A2, A3, and A4, repair holes across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A2, A3, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

20. Edge. In repair zones A2, A3, and A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 21. Dents.

a. In repair zones A2 and A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A2, install a type one flush or lap patch. In repair zone A4, install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair dents free of structure or land areas in aluminum sheet 0.050 inch thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A2, A3, and A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A2, A3, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

22. **Spacer, Aileron, Fabrication and Installation.** See figure 5. To minimize deflection chafing on leading edge of aileron, fabricate and install spacer per steps below when aileron is removed for other maintenance function. Fabrication of spacer is intermediate level maintenance.

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
Plastic Sheet	L-P-410 Nylon 6/6
Rivet (2)	MS20426AD4

a. Fabricate spacer from plastic sheet per dimensions, view B.

b. Attach spacer to lower seal using rivets, view A. Length to be determined at installation. Install rivets using squeeze method only.

c. Refinish as required (A1-F18AC-SRM-500, WP027 00).

### 23. REPLACEMENT.

24. **Skin (74A150824).** For fasteners, figure 6. Skin is replaceable and requires trimming and drilling. On 161353 THRU 162436 requires trimming all edges. On 162437 AND UP requires trimming on outboard and aft edges. For installation of fasteners (A1-F18AC-SRM-200, WP004 06). Drilling requires depot tooling (WP011 01). Apply finish system (A1-F18AC-SRM-500, WP027 00).

25. **Filler (74A110866).** See figure 7.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Sealant Scraper	-



## Materials Required

## NOTE

Alternate item specifications or part numbers are shown in parentheses.

Nomenclature	Specification or Part Number
Cheesecloth	CCC-C-440, Type 1, Class 1
Filler (Fabricate)	14M201-1, Nylon Extrusion
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Isopropyl Alcohol	TT-I-735, Grade 1
Paper, Abrasive	A-A-1047, Grit 320-9X11
Sealing Compound	MIL-S-83430, Class B-1/2 (MIL-S-8802, Type 2, Class B-1/2) (MIL-S-81733, Type 2-1/2)

a. Remove damaged filler and/or all sealing compound remaining in wing fold rib using scraper, detail A.



Isopropyl Alcohol

2

b. Remove residual sealing compound using clean cheesecloth moistened with isopropyl alcohol.

c. Apply finish system if bare metal is exposed (A1-F18AC-SRM-500, WP027 00).

d. Fabricate new filler per detail B.

e. Position filler on wing fold rib and trim length to fit.



Wear clean cotton gloves to prevent contamination of filler. Sealing compound will not bond to contaminated surfaces.

f. Remove filler and lightly abrade all surfaces of filler using 320 grit abrasive paper.

g. Wipe sanding residue from filler using clean, dry cheesecloth.



Sealing Compound

6



Sealing Compound

9



Sealing Compound

10

h. Apply sealing compound to wing fold rib and underside of filler. For preparation and application (A1-F18AC-SRM-200, WP011 00).

## NOTE

Avoid pushing excess sealing compound into tang/chine areas of wing fold transmission.

i. Press filler in place submerging six inches of leading edge end of filler into sealing compound.

j. Make sure sealing compound has squeezed through each countersink hole in filler; add additional sealing compound has failed to penetrate.

## NOTE

Intermittent exposure of filler acceptable.

k. Add additional sealing compound as required to create a faired surface.

l. Cure sealing compound (A1-F18AC-SRM-200, WP011 00).

m. Apply finish system as required (A1-F18AC-SRM-500, WP027 00).



Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (2)	Skin	0.071	0.050	0.014	0.014	90%	0.014	90%
	Zone A3 Zone B3	0.049	N/A	0.008	0.008	90%	0.008	90%
Fig 1 (3)	Skin	0.071	0.045	0.018	0.018	90%	0.018	90%
	Zone A3 Zone B3	0.049	N/A	0.008	0.008	90%	0.008	90%
Fig 1 (4)	Seal	0.080	0.040	0.016	0.016	10%	0.016	10%
	Zone A4	0.040	0.040	0.008	0.008	10%	0.008	10%
Fig 1 (5)	Seal	0.090	0.060	0.018	0.018	10%	0.018	10%
Fig 1 (6)	Seal	0.080	0.060	0.016	0.016	10%	0.016	10%
	Zone A4	0.040	0.060	0.008	0.008	10%	0.008	10%
Fig 1 (8)	Seal	0.080	0.060	0.016	0.016	10%	0.016	10%
	Zone A4	0.040	0.060	0.008	0.008	10%	0.008	10%
Fig 1 (9)	Skin	0.063	0.045	0.013	0.013	100%	0.013	100%
Fig 1 (11)	Seal	0.080	0.040	0.016	0.016	10%	0.016	10%
	Zone A4	0.040	0.040	0.008	0.008	10%	0.008	10%
Fig 1 (12)	Seal	0.090	0.060	0.018	0.018	10%	0.018	10%
Fig 1 (13)	Seal	0.080	0.060	0.016	0.016	10%	0.016	10%
	Zone A4	0.040	0.060	0.008	0.008	10%	0.008	10%



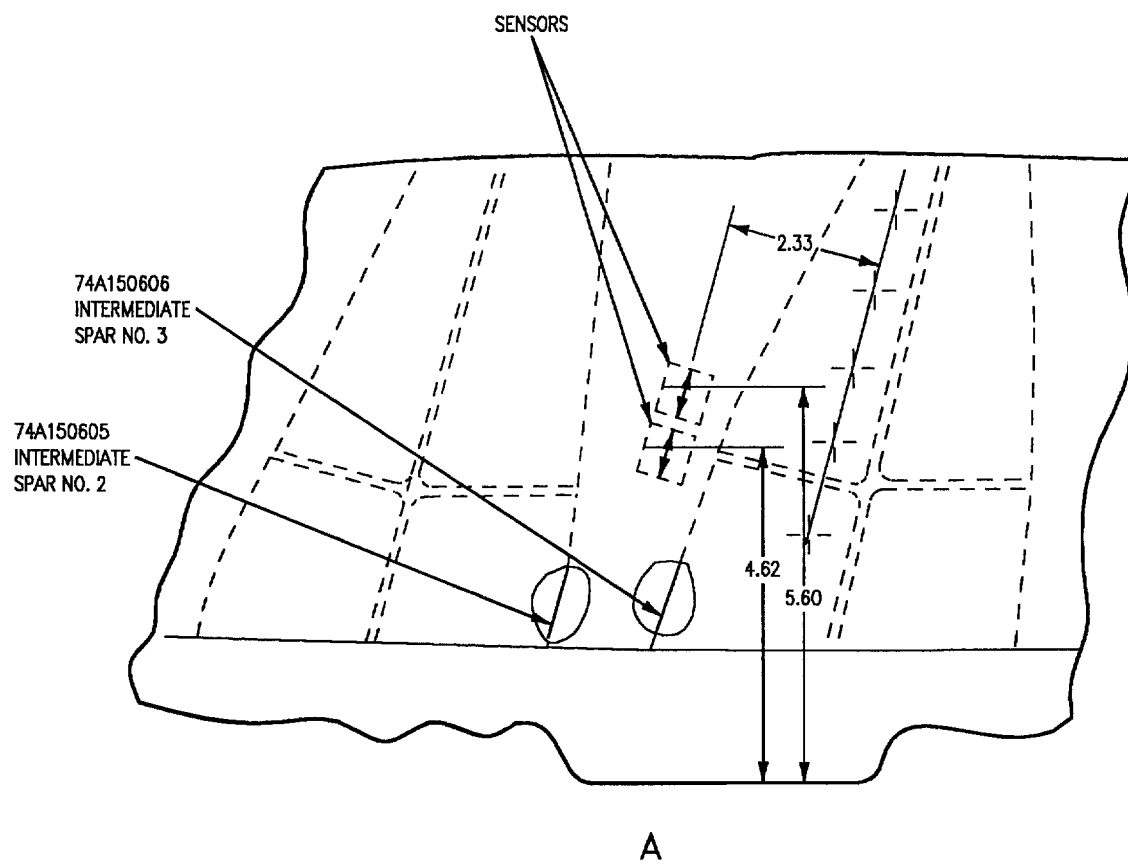


Figure 1. Material Index (Sheet 2)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	<div>5</div> <div>6</div> <div>7</div> <div>8</div>	Skin 74A150600-1009 74A150600-1010 74A150600-1011 74A150600-1012	<div>1</div> Laminate	<div>2</div>
2	<div>21</div> <div>23</div> <div>22</div> <div>24</div>	Skin 74A150825-2001 74A150825-2002 74A150825-2003 74A150825-2004	<div>3</div> 0.071 Sheet	7075-T6 Alclad
3		Skin 74A150824-2001, -2002	<div>4</div> 0.090 Sheet	7075-T6 Alclad
4	<div>9</div> <div>16</div>	Seal 74A150822-2003, -2004 74A150822-2009, -2010	0.080 Sheet	7075-T6 Alclad
5	<div>10</div> <div>11</div>	Angle 74A150822-2007 74A150822-2008	0.090 Sheet	7075-T76 Alclad
6	<div>10</div> <div>11</div>	Seal 74A150822-2005 74A150822-2006	0.080 Sheet	7075-T6 Alclad
7	<div>19</div> <div>20</div>	Skin 74A150823-1001, -1002 74A150823-1003, -1004	<div>1</div> 0.2546 Sheet	<div>2</div>
8		Seal 74A150822-2001, -2002	0.080 Sheet	7075-T6 Alclad
9		Skin 74A150839-2001, -2002	0.063 Sheet	7075-T6 Alclad
10	<div>12</div> <div>13</div> <div>14</div> <div>15</div>	Skin 74A150601-1009 74A150601-1010 74A150601-1011 74A150601-1012	<div>1</div> Laminate	<div>2</div>
11	<div>17</div>	Seal 74A150822-2015, -2016	0.080 Sheet	7075-T6 Alclad
12	<div>17</div>	Seal 74A150822-2013, -2014	0.080 Sheet	7075-T6 Alclad
13	<div>17</div> <div>18</div>	Seal 74A150822-2011 74A150822-2012	0.080 Sheet	7075-T6 Alclad

Figure 1. Material Index (Sheet 3)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
14	25	Filler 74A110866-3759	14M201-1 Extrusion	Nylon
<p style="text-align: center;"><b>LEGEND</b></p> <p>1 Laminated of varying plys.</p> <p>2 Graphite epoxy prepreg with top ply of glass epoxy prepreg.</p> <p>3 Land is 0.071, bay is 0.049.</p> <p>4 Land is 0.090, bay is 0.049.</p> <p>5 161353 THRU 161715, 161718 AND UP.</p> <p>6 161353 THRU 161716, 161718 AND UP.</p> <p>7 161716 AND 161717.</p> <p>8 161717.</p> <p>9 161353 THRU 161519.</p> <p>10 161353 THRU 161963.</p> <p>11 161353 THRU 161965.</p> <p>12 161353 THRU 161715, 161721 AND UP.</p> <p>13 161353 THRU 161715, 161718 THRU 161759, 161761 AND UP.</p> <p>14 161716 THRU 161720.</p> <p>15 161716 THRU 161717, AND 161760.</p> <p>16 161520 THRU 161963.</p> <p>17 161964 AND UP.</p> <p>18 161966 AND UP.</p> <p>19 161353 THRU 163128.</p> <p>20 163129 AND UP.</p> <p>21 161353 THRU 163111.</p> <p>22 163112 AND UP.</p> <p>23 161353 THRU 163115.</p> <p>24 163116 AND UP.</p> <p>25 161520 AND UP.</p> <p>26 After RAMEC NORIS-23-88.</p>				

Figure 1. Material Index (Sheet 4)

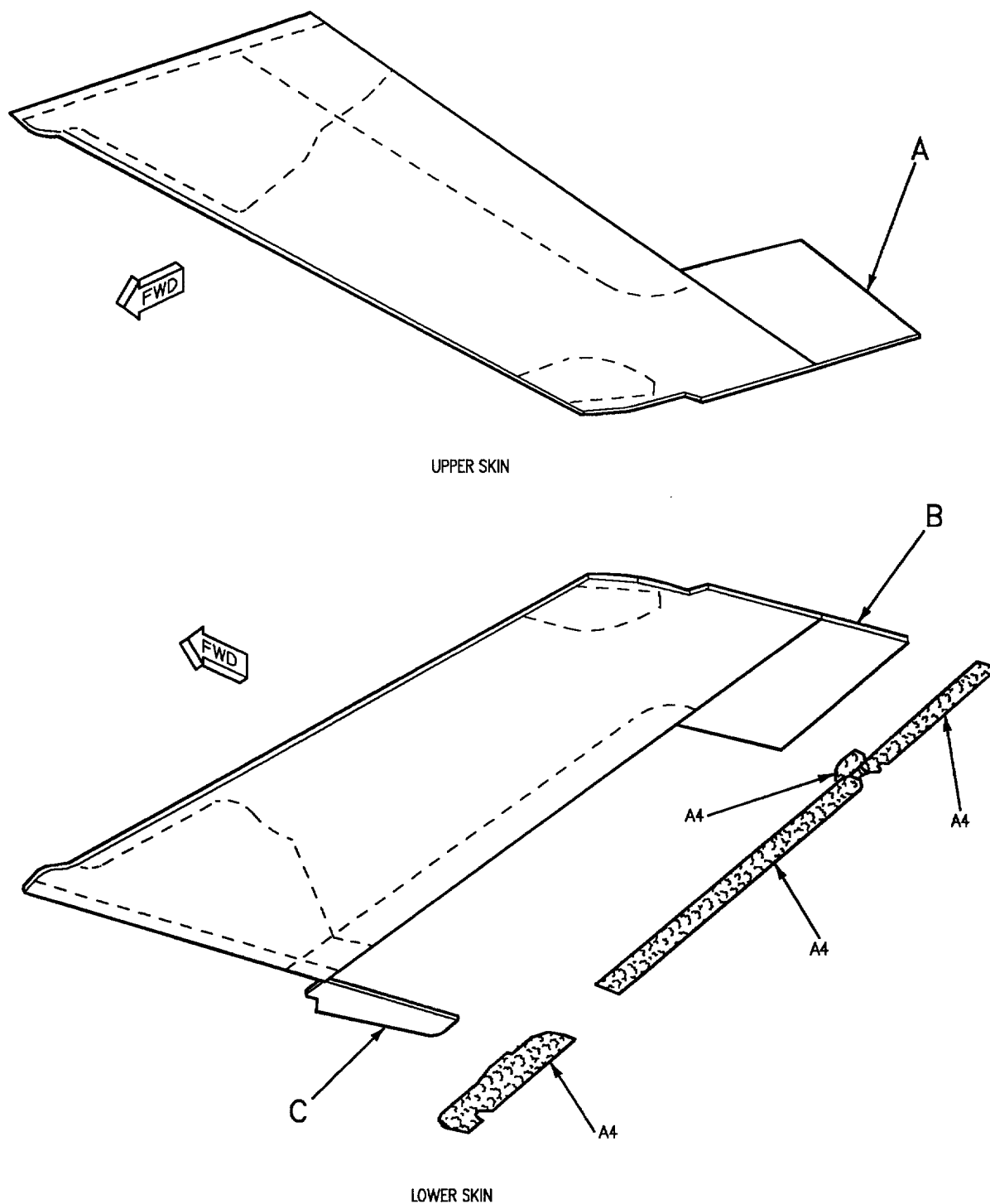


Figure 2. Repair Zones (Sheet 1)



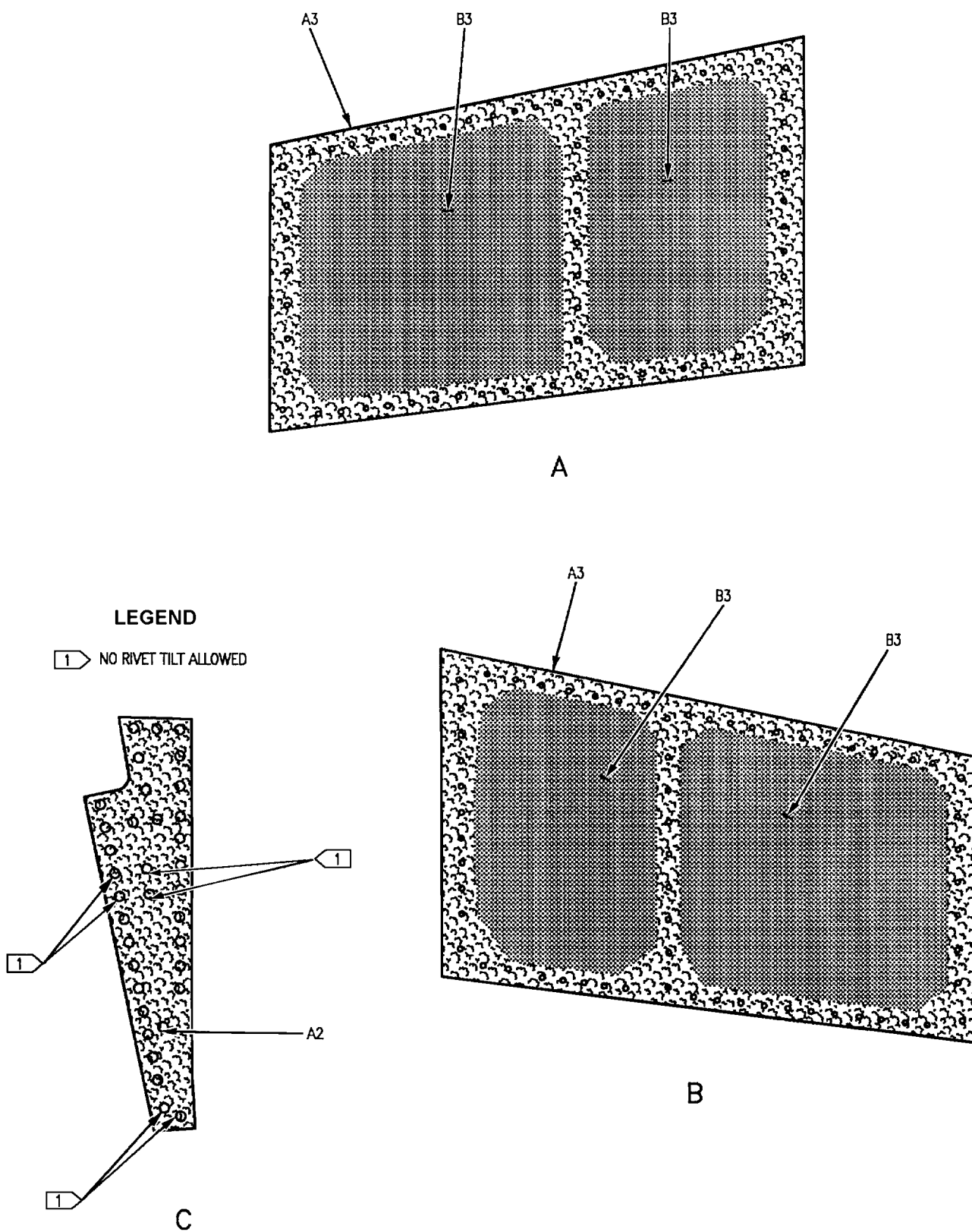
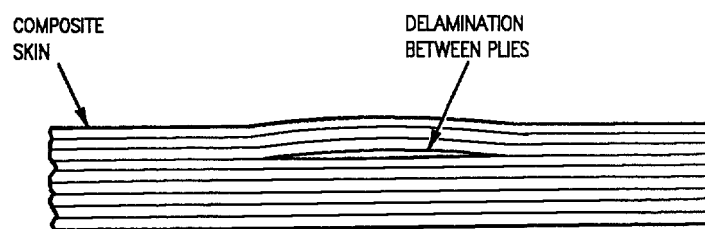
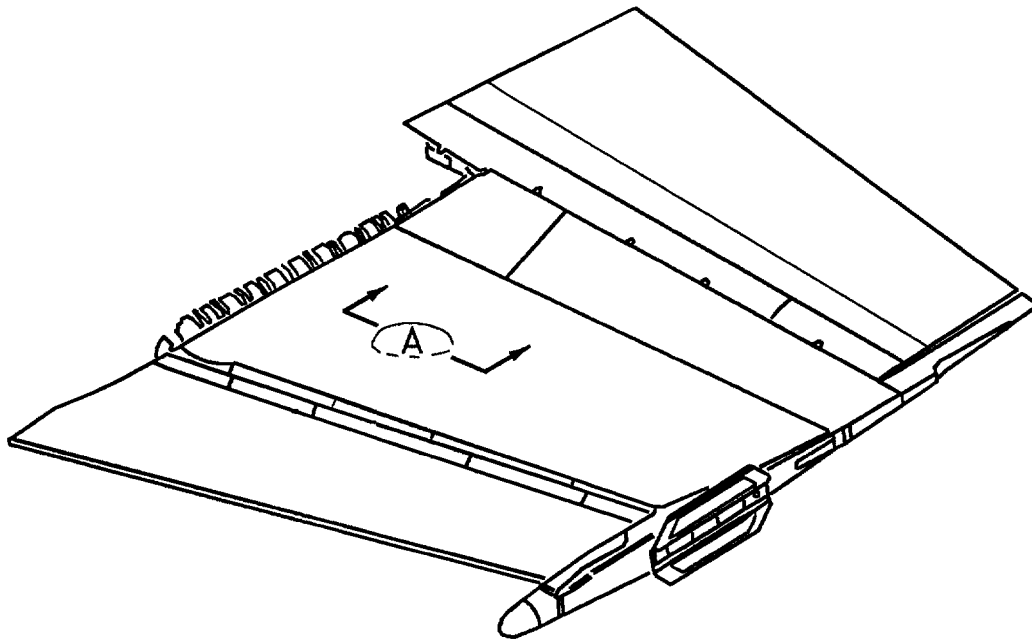


Figure 2. Repair Zones (Sheet 2)



A

Figure 3. Negligible Damage, Composite Skin

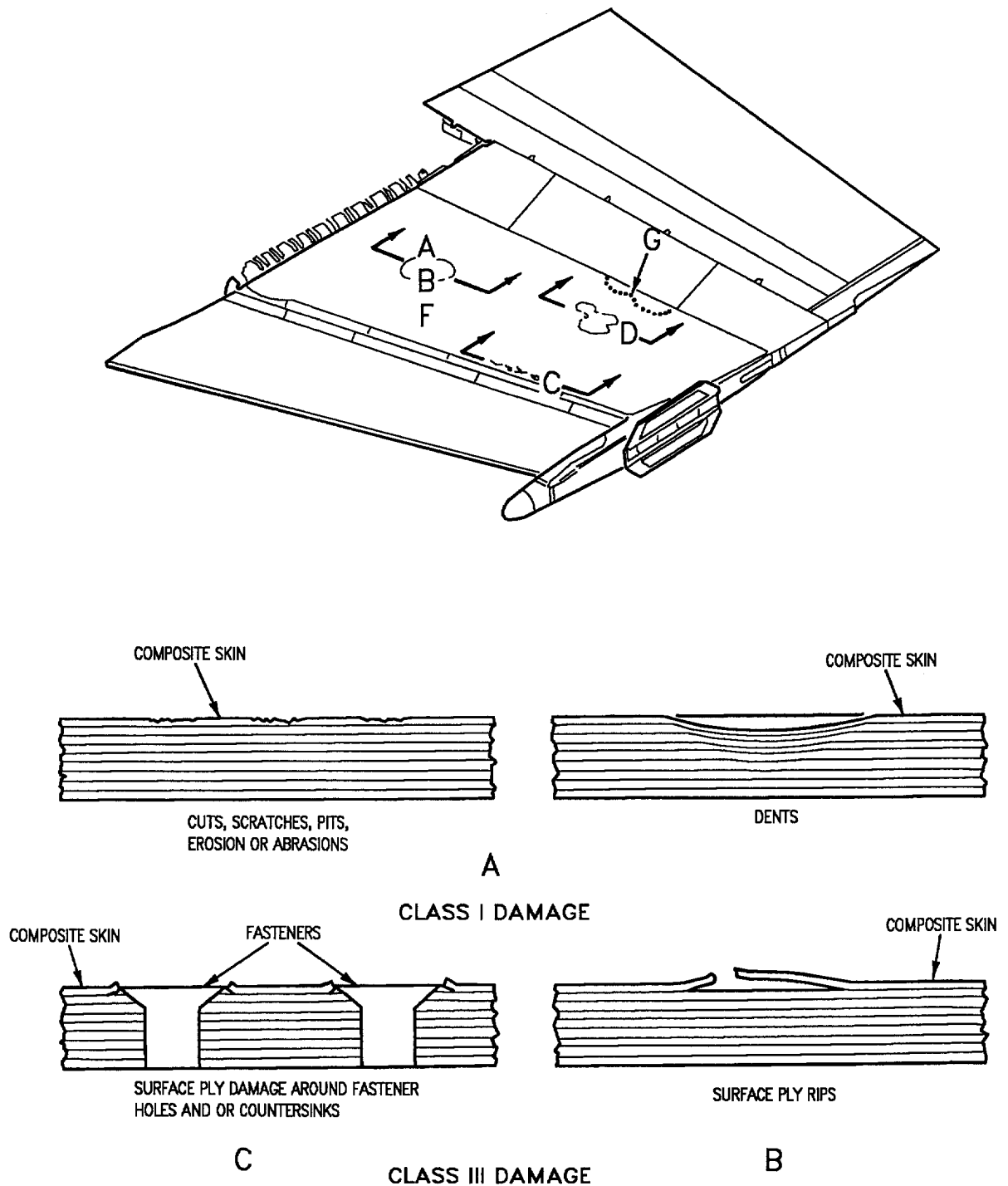


Figure 4. Repairable Damage, Composite Skin (Sheet 1)

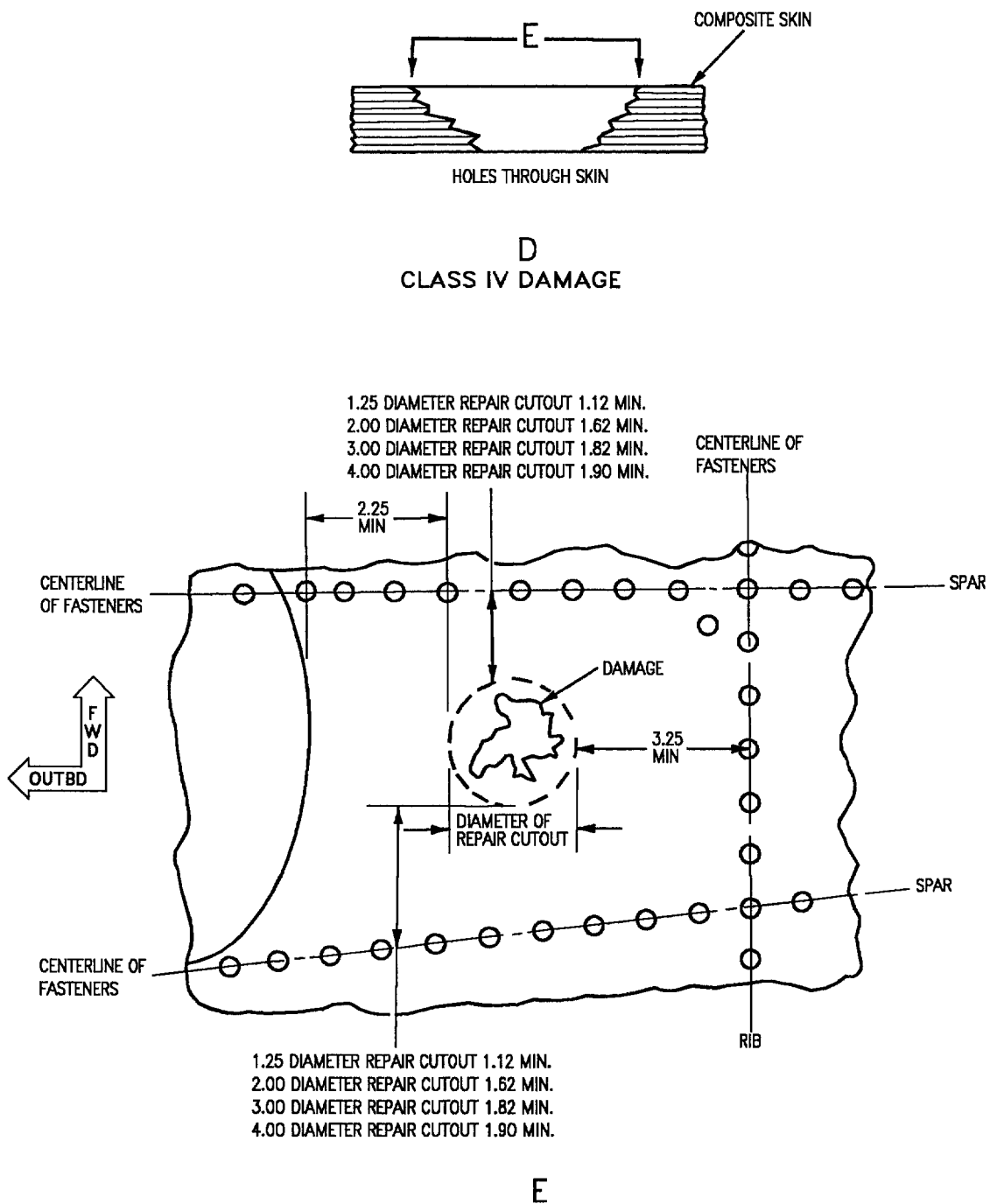
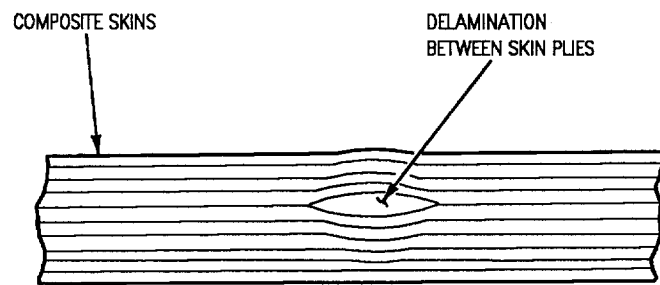
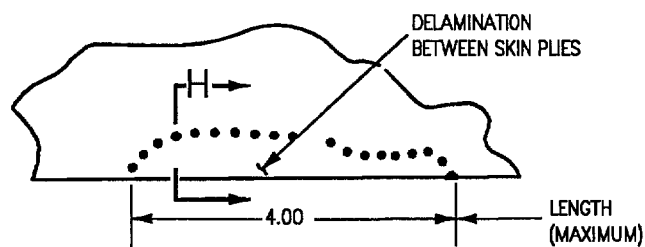


Figure 4. Repairable Damage, Composite Skin (Sheet 2)



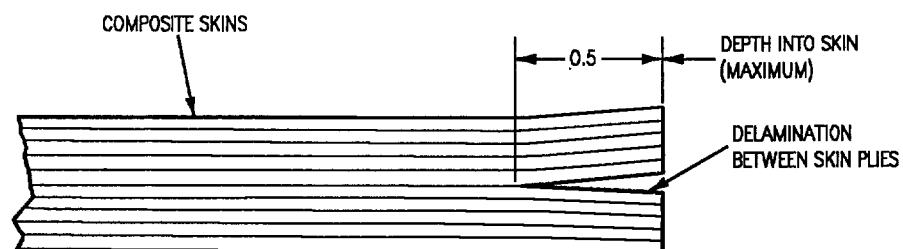
NOT OPEN TO EDGE

F



OPEN TO EDGE

G



OPEN TO EDGE

H

CLASS V DAMAGE

Figure 4. Repairable Damage, Composite Skin (Sheet 3)

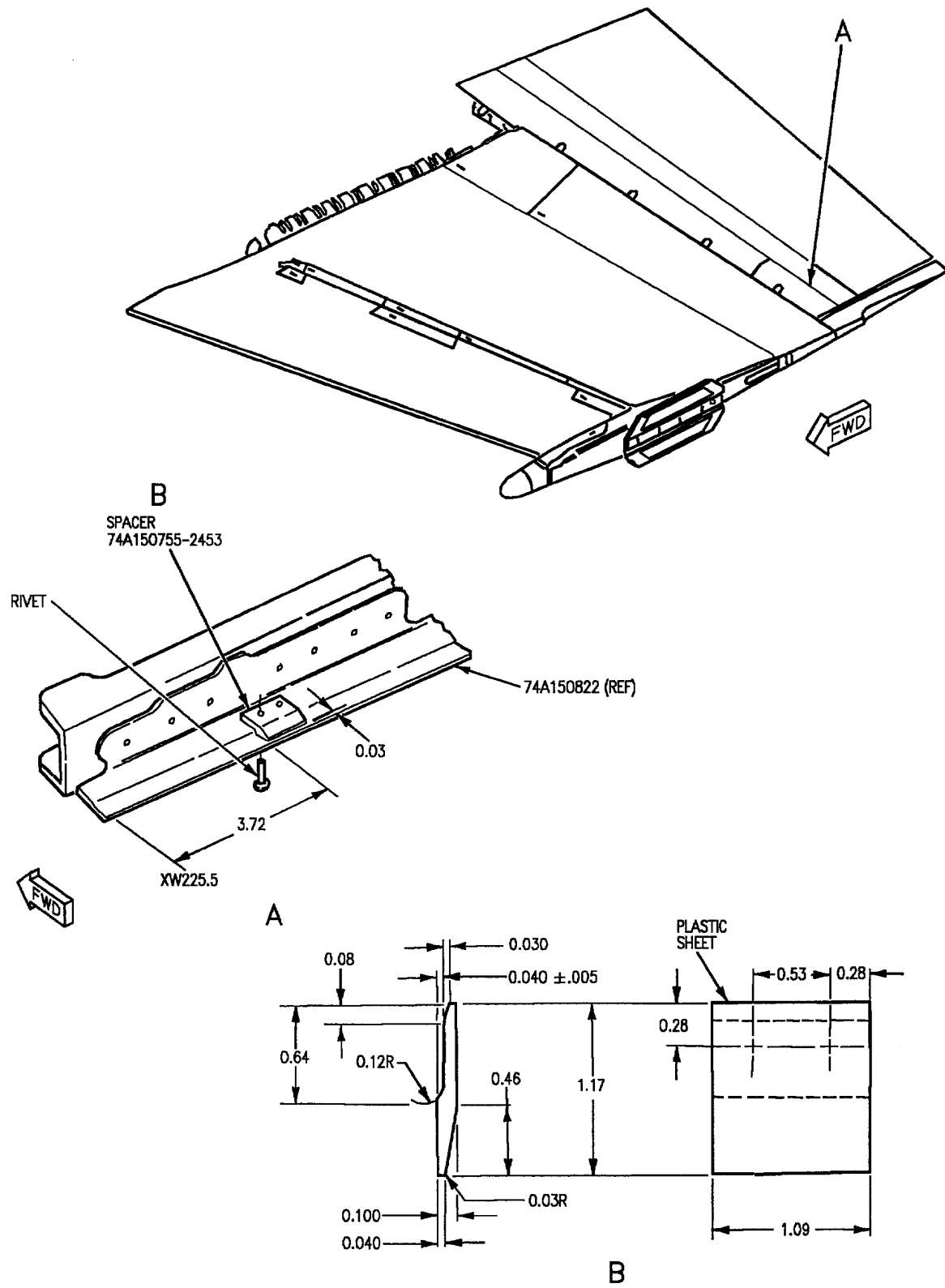


Figure 5. Spacer, Aileron, Fabrication and Installation

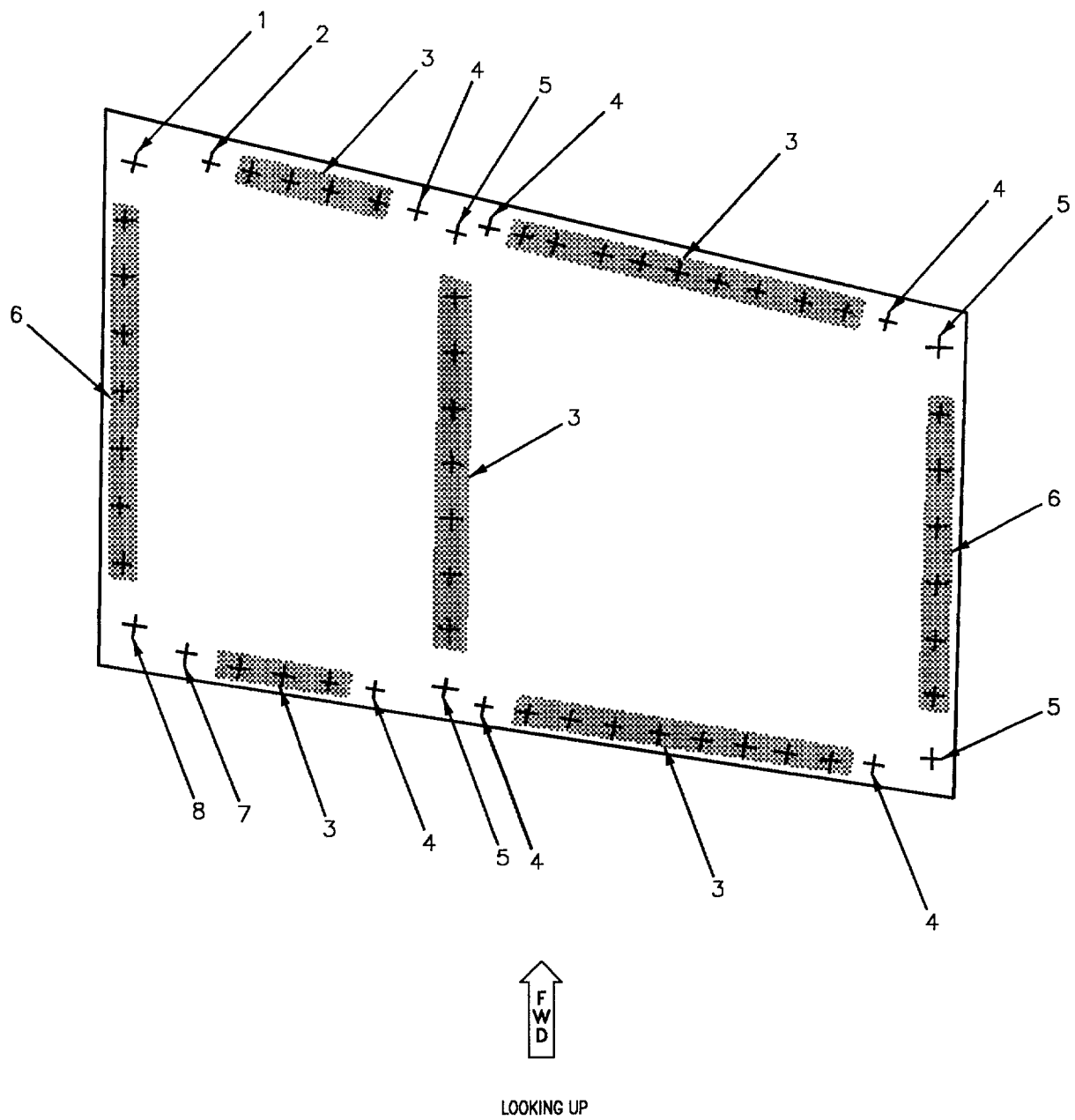


Figure 6. Skin (74A15-824) Replacement (Sheet 1)



Idx No.	Eft		Nomenclature	Part Number
1			Pin Collar Washer	HLT311DL-8-10 HL582-8MCA SW2000-8W
2			Rivet	BRFS5T10
3			Rivet	BRFS5AD
4			Rivet	BRFS5T8
5			Pin Collar	HLT311DL-6-5 HL570-6MC
6			Pin Collar	HLT311DL-5-3 HL570-5MC
7			Pin Collar	HLT311DL-5-14 HL570-5MC
8			Pin Collar	HLT311DL-8-12 HL570-8MC
LEGEND				
 Length determined on installation.1				

Figure 6. Skin (74A150824) Replacement (Sheet 2)



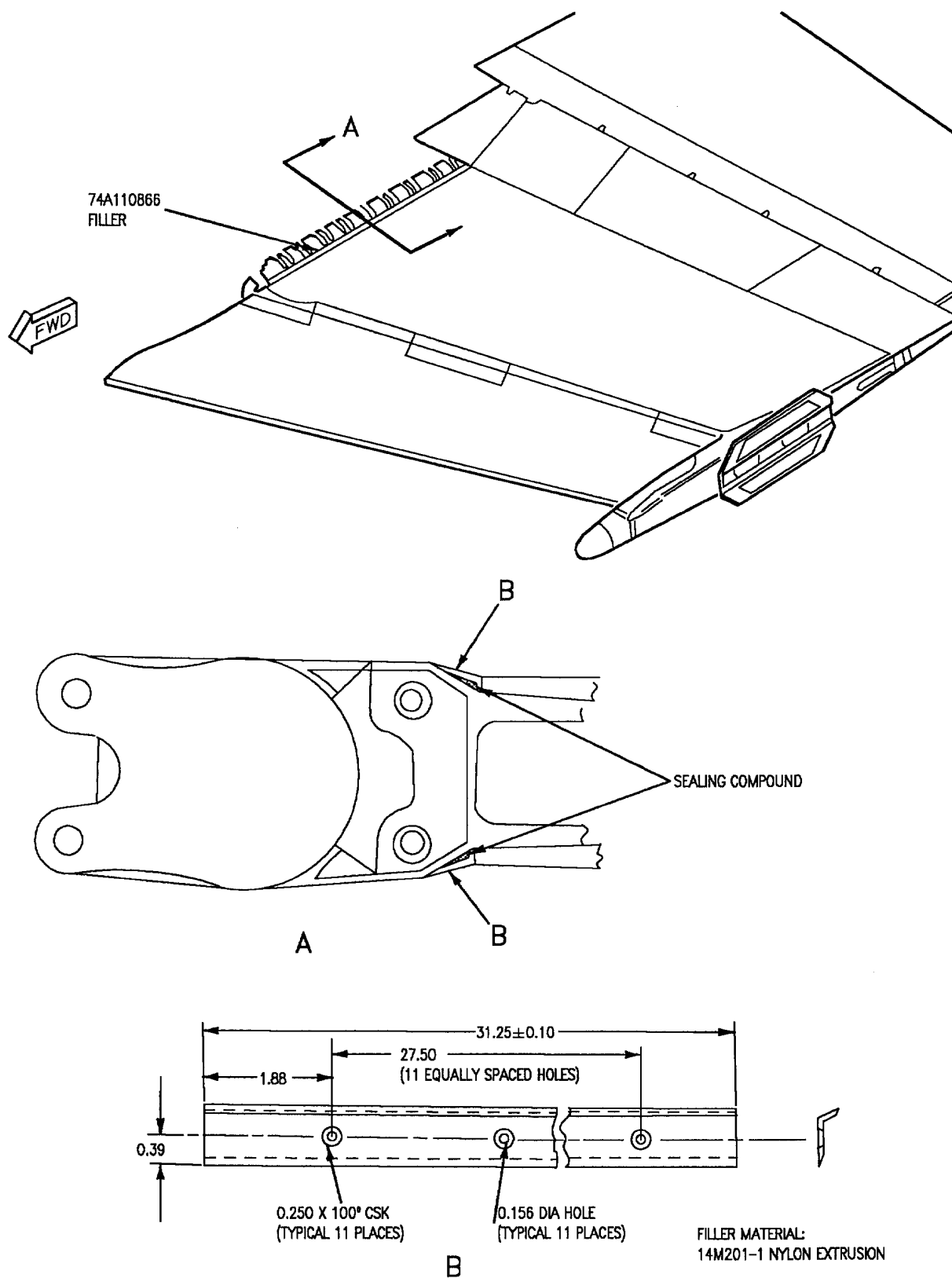


Figure 7. Filler (74A110866) Replacement



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DEPOT MAINTENANCE  
STRUCTURE REPAIR  
HOLE LOCATING PLATE SET  
RE174150824

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### Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Outer Wing Skins .....	WP011 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Accessory Kits and Spray Mist Coolant Tank .....	WP004 16

### Alphabetical Index

Subject	Page No.
Description .....	1
Drilling Holes in 74A150824 Skin .....	1
Drilling Holes in 74A150824 Skin and Substructure .....	14
Drilling Holes in 74A150824 Skin Substructure .....	8

### Record of Applicable Technical Directives

None

#### 1. DESCRIPTION.

2. The outer wing shall be folded or removed to perform the procedure below. The plate sets for replaceable 74A150824 skin will be used to locate the attach hole pattern in skin and/or mating substructure. The plate sets contain high temperature fiberglass bonded assemblies. Hole boards are provided to show holes, hole numbers, repair numbers, and material of skin and substructure. Repair numbers on the hole boards are color coded to coincide with bonded assemblies and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

3. DRILLING HOLES IN 74A150824 SKIN. See figure 1.

#### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set-Hole Locating, Outer Wing Skin, Lower, Aft	RE174150824

#### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend
a. Remove damaged skin.	

b. Select and install RE37000002 dummy fasteners into all substructure fastener holes, view A.

c. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of skin, view C.

d. Position sequence A bonded assembly (detail 11) in position on skin substructure and align edges for equal spacing, view A.

e. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into dummy fasteners in substructure, view A and D.



Solder, Wire, Cerrobend

11

f. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

g. Remove sequence A bonded assembly (detail 11).

h. Repeat steps c through f for sequence B bonded assembly (detail 12).

i. Remove sequence B bonded assembly (detail 12).

j. Trim replacement skin.

k. Place replacement skin on work surface.

l. Retract skin thickness adapters (detail 104) on bonded assembly to all bonded assembly to contact replacement skin.

m. Position sequence A bonded assembly (detail 11) on replacement skin and align edges for equal spacing, view B.

n. Clamp bonded assembly to replacement skin.

o. Drill and ream hole pattern in replacement skin using applicable hole board and applicable repair number work package, Structure Repair, General Information (A1-F18AC-SRM-200).

p. Remove sequence A bonded assembly (detail 11).

q. Position sequence B bonded assembly (detail 12) on replacement door and pin in place at numbered index holes 671 and 702 using RE374000002 step pins per Table 1, views B and E.

r. Repeat steps n and o for sequence B bonded assembly (detail 12).

s. Remove sequence B bonded assembly (detail 12).

t. Install fasteners and apply finish system per Replacements (WP011 00).

u. Install skin.

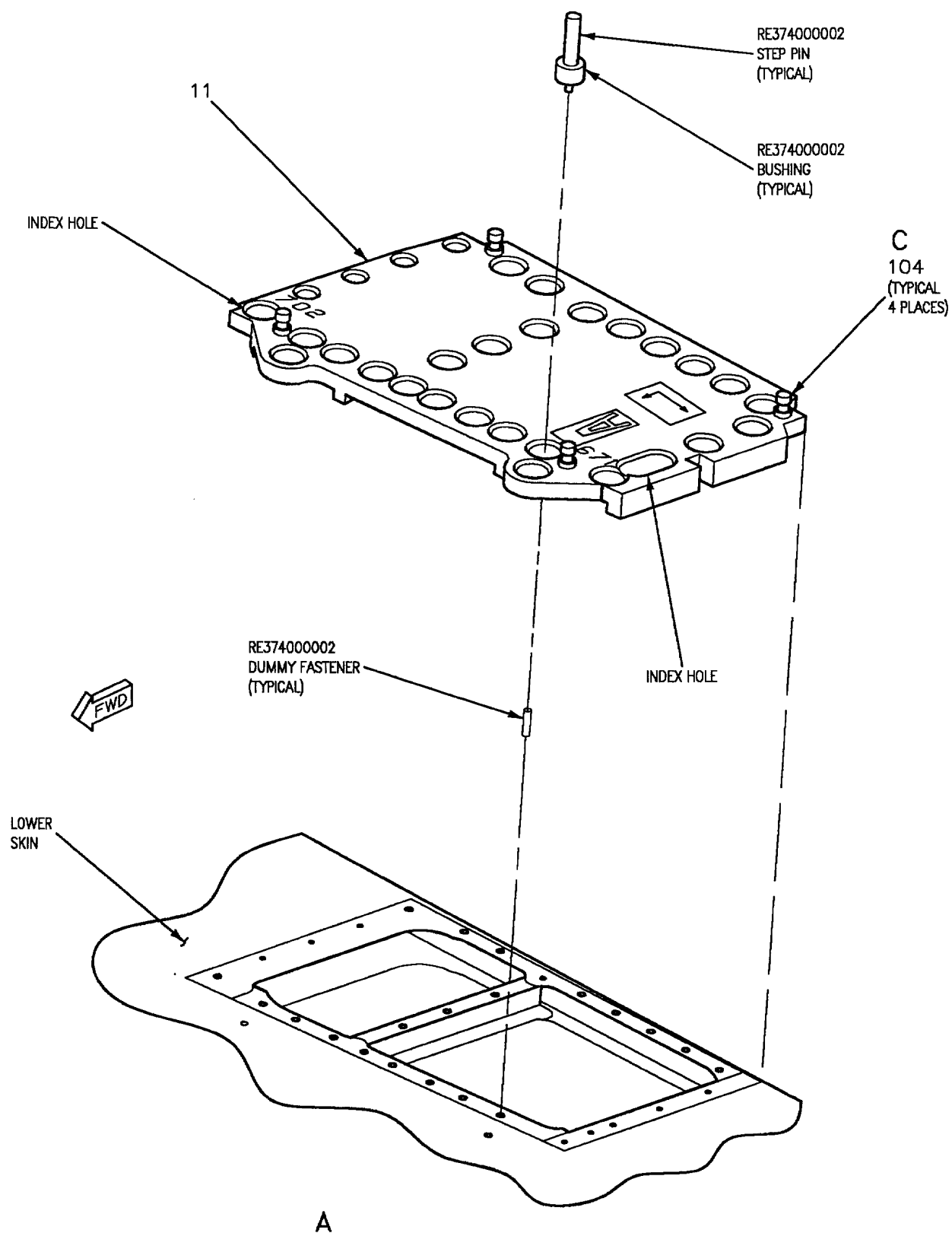


Figure 1. Installation of Plate Set for Drilling 74A150824 Skin (Sheet 1)

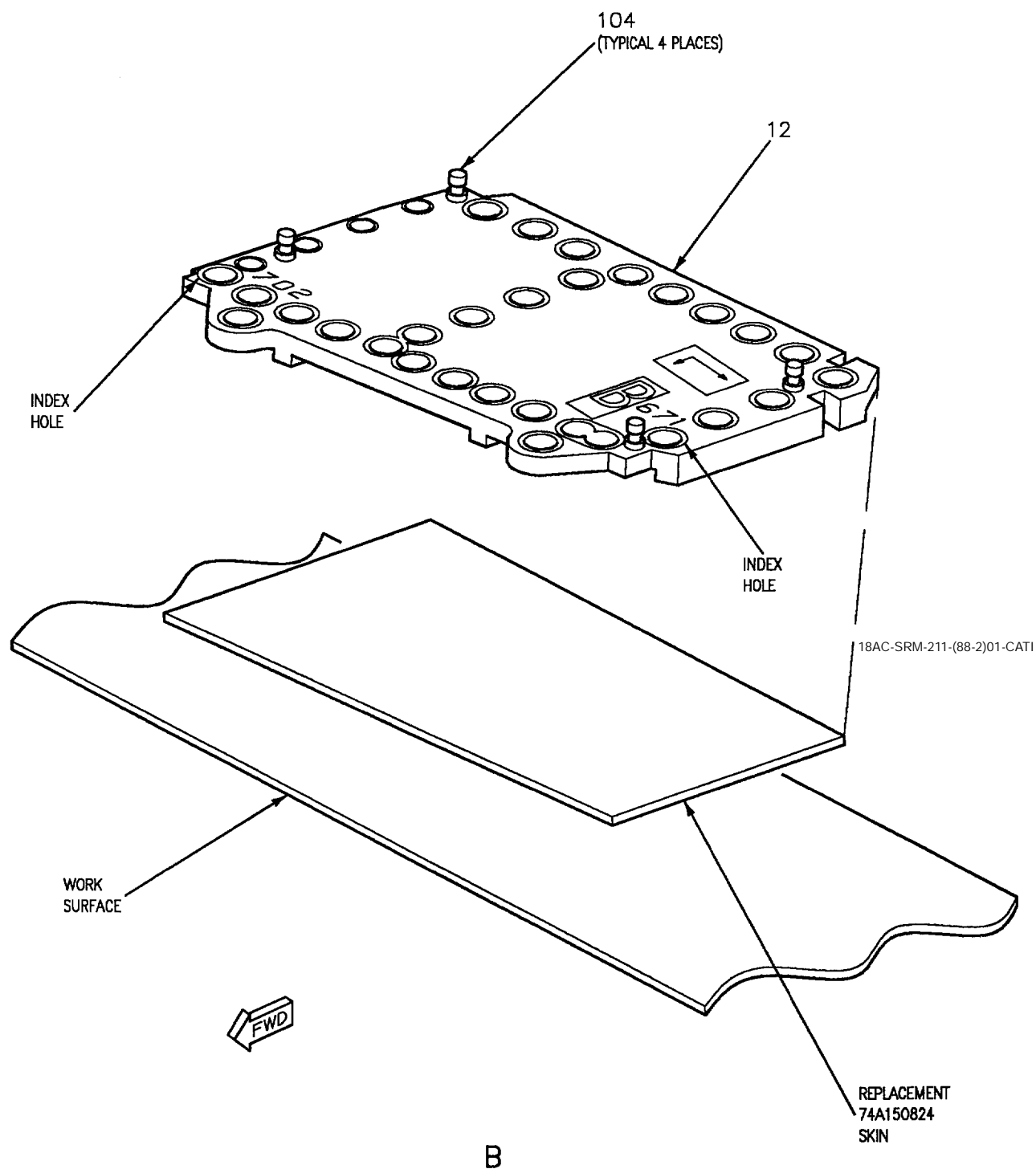


Figure 1. Installation of Plate Set for Drilling 74A150824 Skin (Sheet 2)

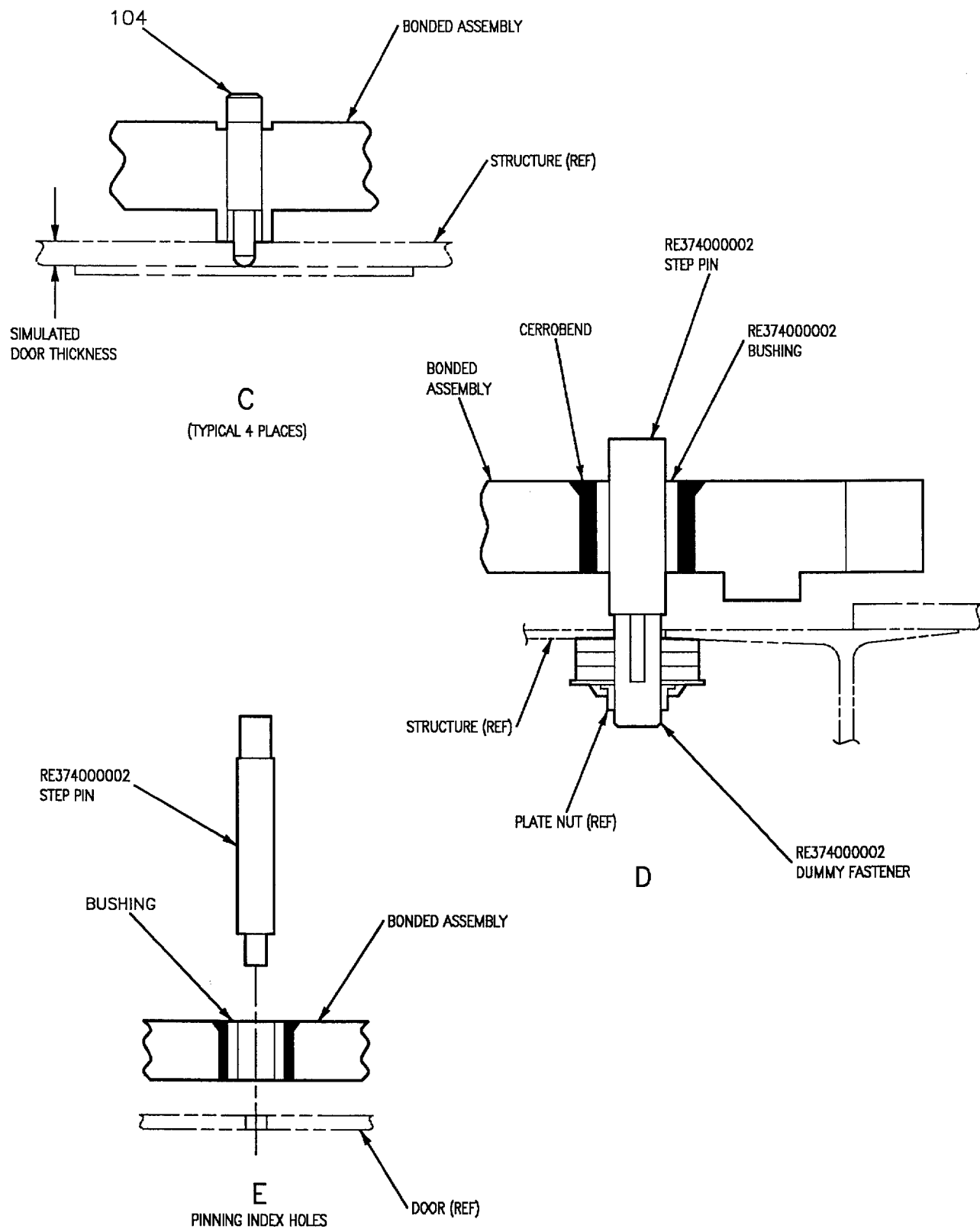
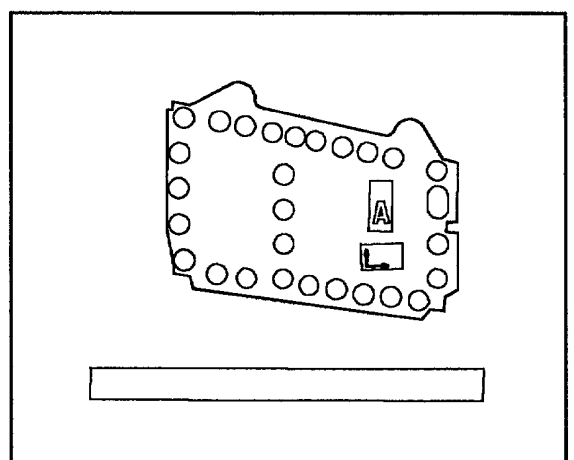
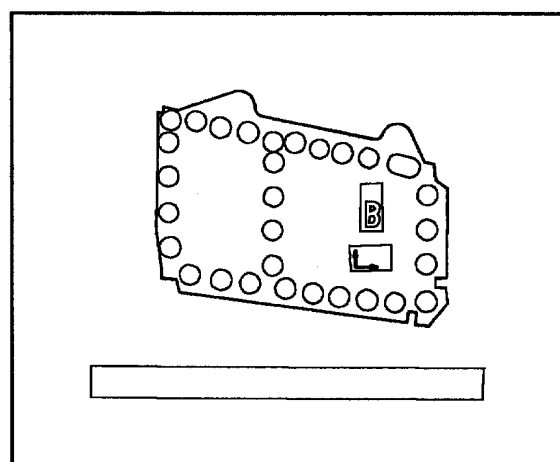



Figure 1. Installation of Plate Set for Drilling 74A150824 Skin (Sheet 3)



L105 LEFT SIDE  
R105 RIGHT SIDE



L108 LEFT SIDE  
R108 RIGHT SIDE

TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
	420	0.2495	126	121
	428	0.2500	126	121
	671	0.1800	174	121
	702	0.2450	175	121

 OUTER INDEX HOLES IN SURROUNDING SKIN.

Figure 1. Installation of Plate Set for Drilling 74A150824 Skin (Sheet 4)



Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L105, R105	Hole Board	Sequence A reference board.
L108, R108	Hole Board	Sequence B reference board.

Figure 1. Installation of Plate Set for Drilling 74A150824 Skin (Sheet 5)

4. DRILLING HOLES IN 74A150824 SKIN SUB-STRUCTURE. See figure 2.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set-Hole Locating, Outer Wing Skin, Lower, Aft	RE174150824

Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove skin.
- b. Remove and replace damaged substructure.
- c. Retract skin thickness adapters (detail 104) on bonded assembly to allow bonded assembly to contact door.
- d. Place skin on work surface.
- e. Position sequence A bonded assembly (detail 11) on skin and align edges for equal spacing, view A.
- f. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into holes in skin, views A and C.



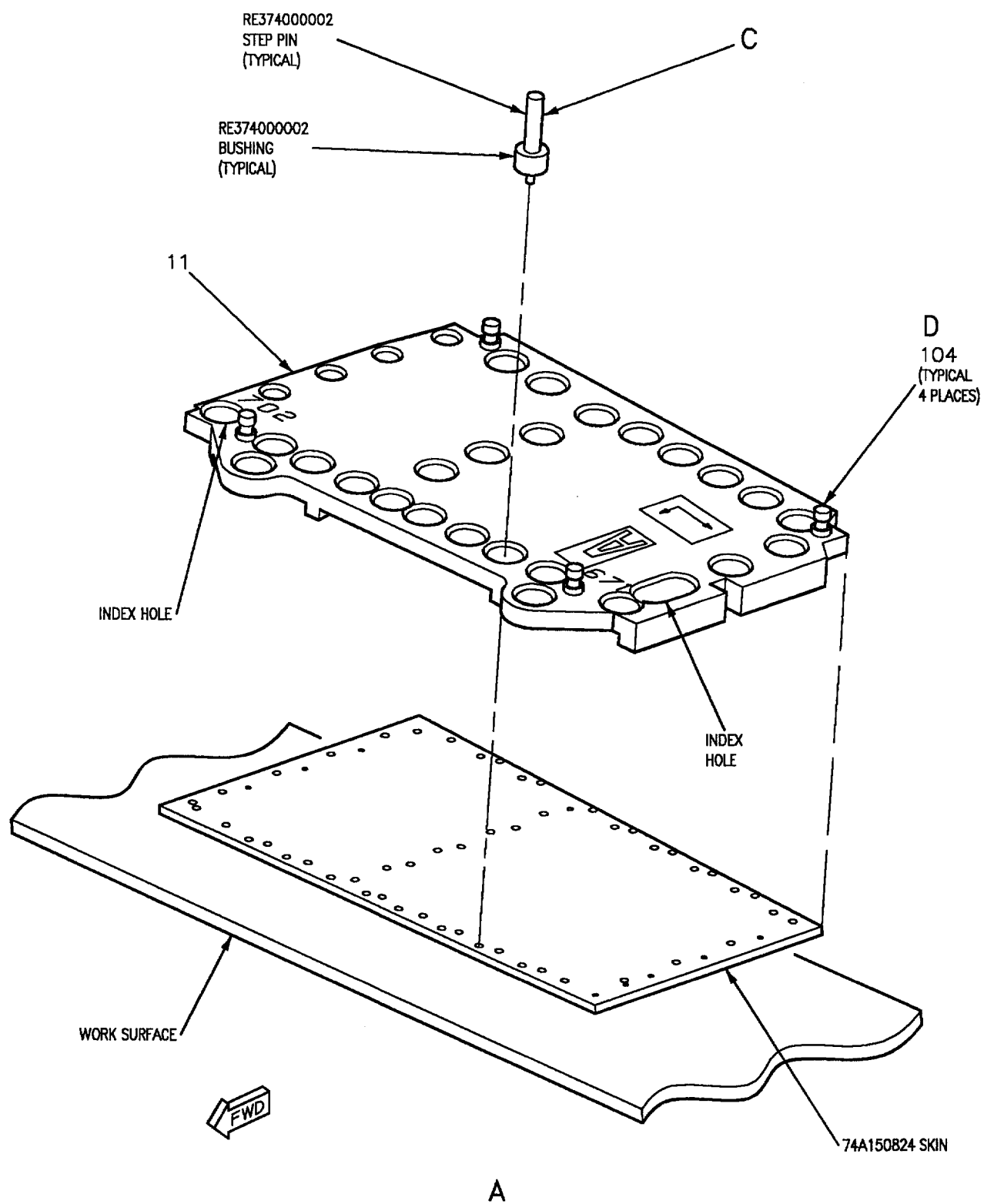
Solder, Wire, Cerrobend

11

- g. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill, per Hole Lo-

cating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view C.

- h. Remove sequence A bonded assembly (detail 11).
- i. Repeat steps c through g for sequence B bonded assembly (detail 12).
- j. Remove sequence B bonded assembly (detail 12).
- k. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of skin, view B and D.
- l. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view B.
- m. Secure bonded assembly in place using clamps, or bolt in place at outer tab index hole locations, view E.
- n. Drill and ream hole pattern in replacement structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).
- o. Remove sequence A bonded assembly (detail 11).
- p. Position sequence B bonded assembly (detail 12) on structure and pin in place at numbered index holes 671 and 702 using RE374000002 step pins per Table 1, views B and F.
- q. Repeat steps m and n for sequence B bonded assembly (detail 12).
- r. Remove sequence B bonded assembly (detail 12).
- s. Install fasteners and apply finish system per Replacements (WP011 00).
- t. Install skin.



11010201

Figure 2. Installation of Plate Set for Drilling Substructure for 74A150824 Skin  
(Sheet 1)

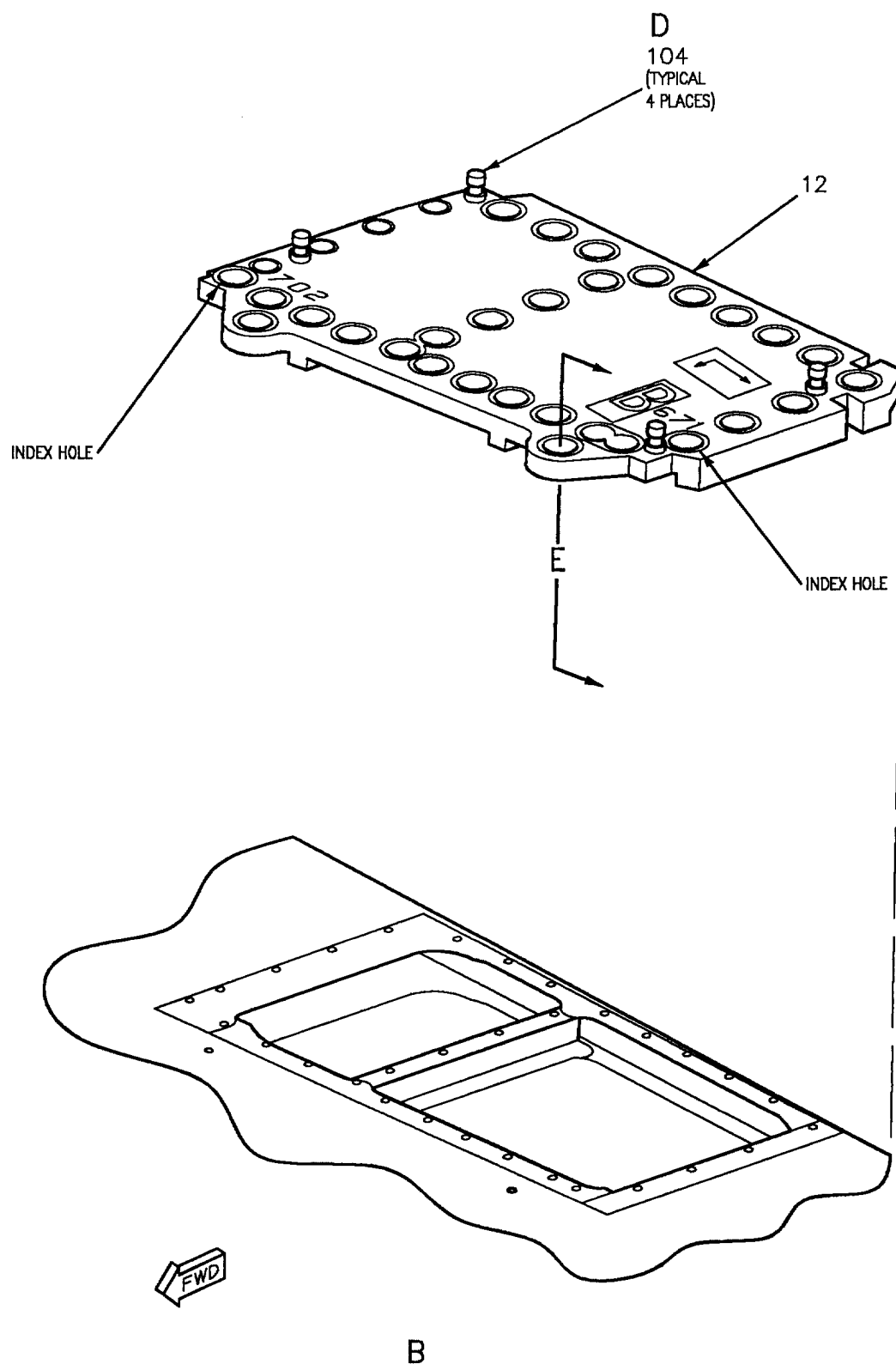


Figure 2. Installation of Plate Set for Drilling Substructure for 74A150824 Skin  
(Sheet 2)

11010202

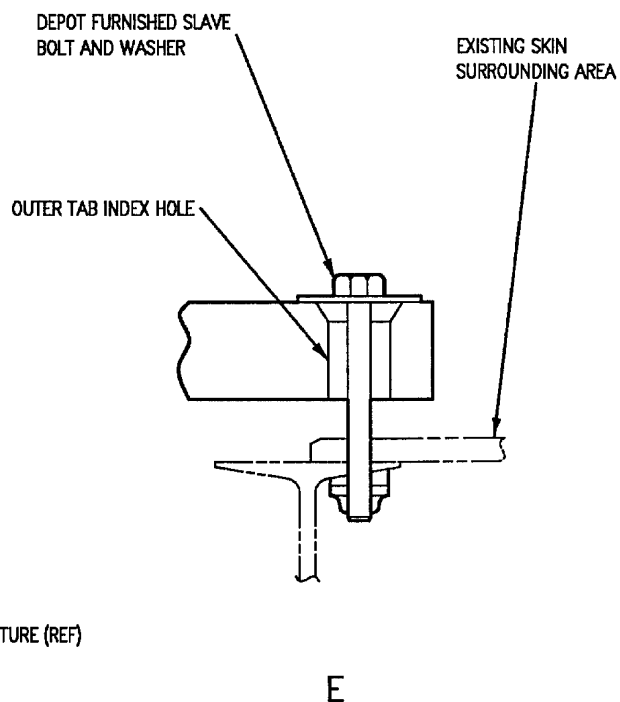
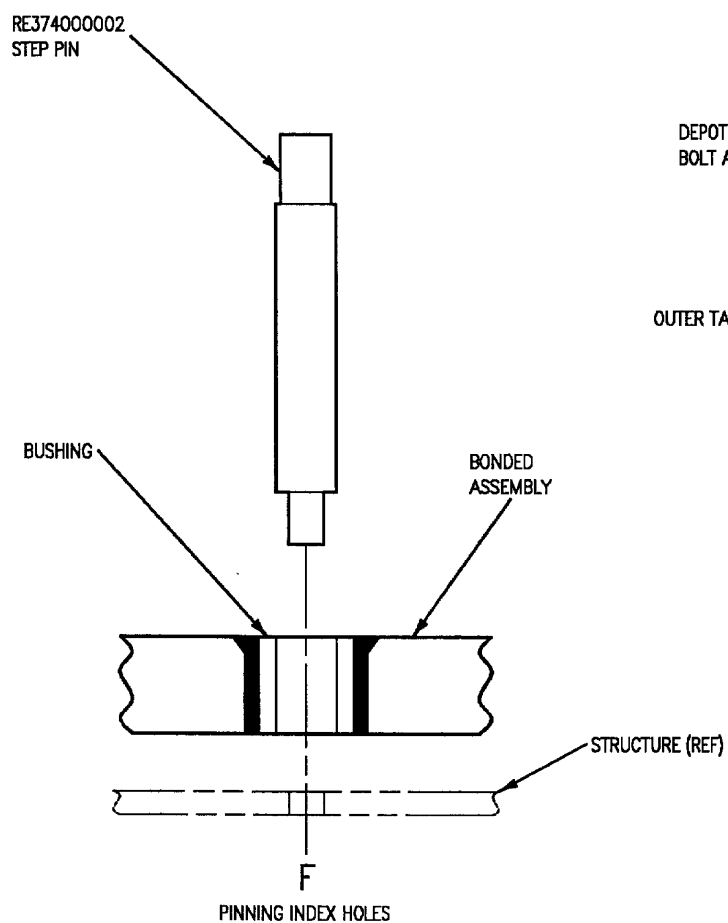
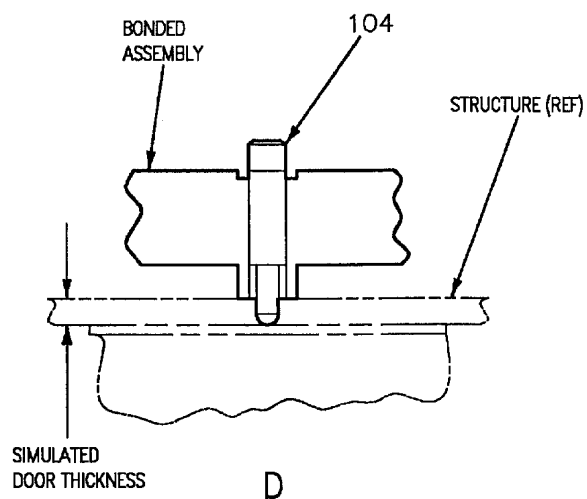
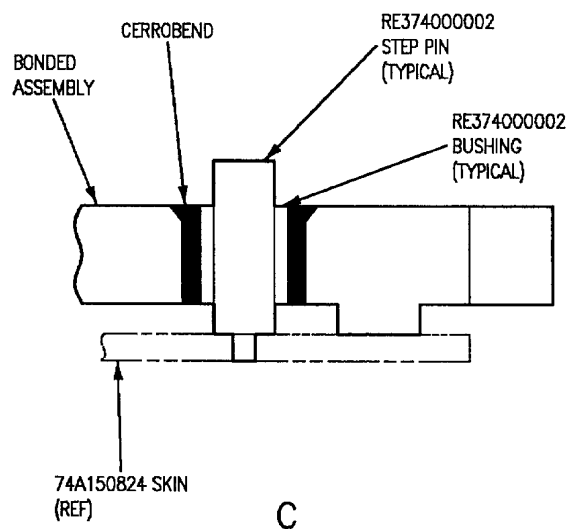


Figure 2. Installation of Plate Set for Drilling Substructure for 74A150824 Skin (Sheet 3)

11010203

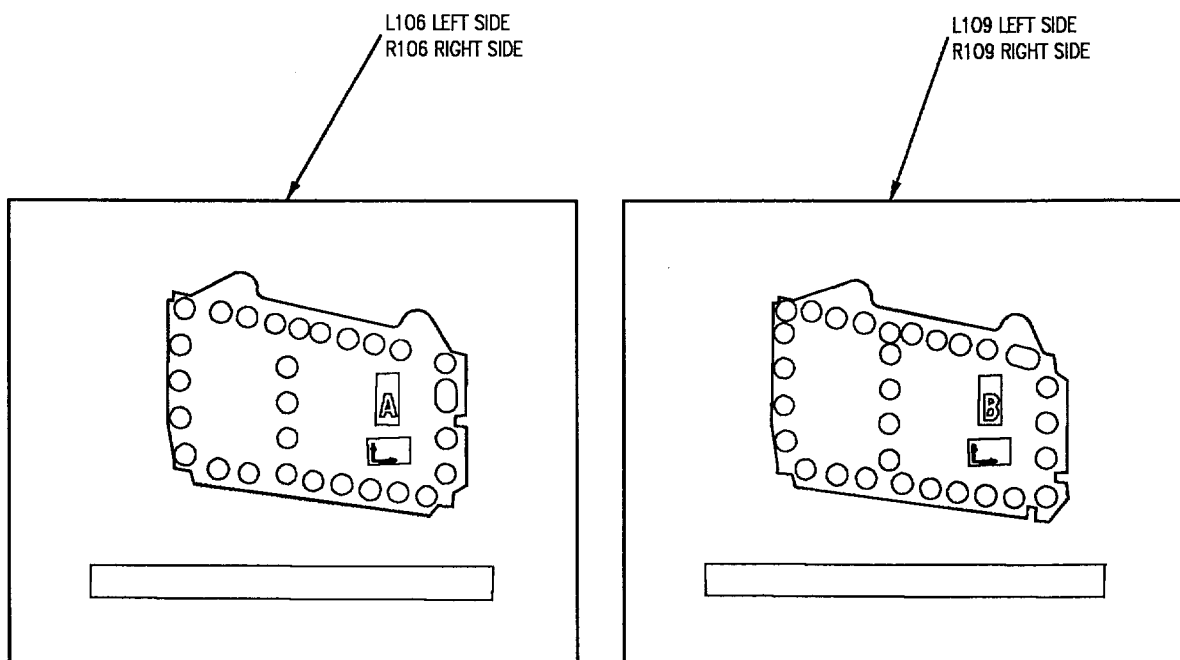


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
<div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div>	420	0.2495	126	121
	428	0.2500	126	121
	671	0.1600	174	121
	702	0.2450	175	121

1

 OUTER INDEX HOLES IN SURROUNDING SKIN.

11010204

Figure 2. Installation of Plate Set for Drilling Substructure for 74A150824 Skin  
(Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L106, R106	Hole Board	Sequence A reference board.
L109, R109	Hole Board	Sequence B reference board.

Figure 2. Installation of Plate Set for Drilling Substructure for 74A150824 Skin (Sheet 5)

## 5. DRILLING HOLES IN 74A150824 SKIN AND SUBSTRUCTURE. See figure 3.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set-Hole Locating, Outer Wing Skin, Lower, Aft	RE174150824

### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

a. Remove damaged 74A150824 skin.

b. Remove and replace damaged substructure.

c. Lay out fastener pattern on substructure or use an undamaged skin as a template to mark fastener pattern on substructure.

(1) If damaged door is used as a template, mark location of each fastener hole on structure through existing fastener holes of door.

(2) Inspect marked hole locations for correct edge distance.

d. Pilot drill hole pattern in structure.

e. Remove numbered fasteners 420 and 428 from skin, view A to mate tabs on bonded assembly.

f. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of skin, views A and C.

g. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view A.

h. Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into holes in structure, views A and D.

i. Install applicable RE374000002 step pins and bushings through outer tabs of bonded assembly and into fastener holes, views A and E.



Solder, Wire, Cerrobend

11

j. Pot bushings in bonded assembly using melted cerrobend with a minimum of 75 percent fill, per Hole Location Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

k. Remove sequence A bonded assembly (detail 11).

l. Repeat steps f through j for sequence B bonded assembly (detail 12).

m. Remove sequence B bonded assembly (detail 12).

n. Trim replacement skin.

o. Position replacement skin in place on structure, view B.

p. Retract skin thickness adapters (detail 104) on bonded assemblies to allow bonded assembly to contact skin.

q. Position sequence A bonded assembly (detail 11) on skin and pin at two outer tab index hole locations using RE374000002 step pins per Table 1, views B and E.

r. Secure bonded assembly and skin in place using clamps.

s. Drill and ream hole pattern in replacement skin and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-pin per Table 2 after drilling each hole to prevent skin from shifting, view F.

t. Remove sequence A bonded assembly (detail 11).

u. Position sequence B bonded assembly (detail 12) on door and pin in place at numbered index holes 420 and 428 using RE374000002 step pins per Table 1, view G.

v. Secure bonded assembly in place using clamps.

w. Drill and ream hole pattern in replacement door and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-pins per Table 2



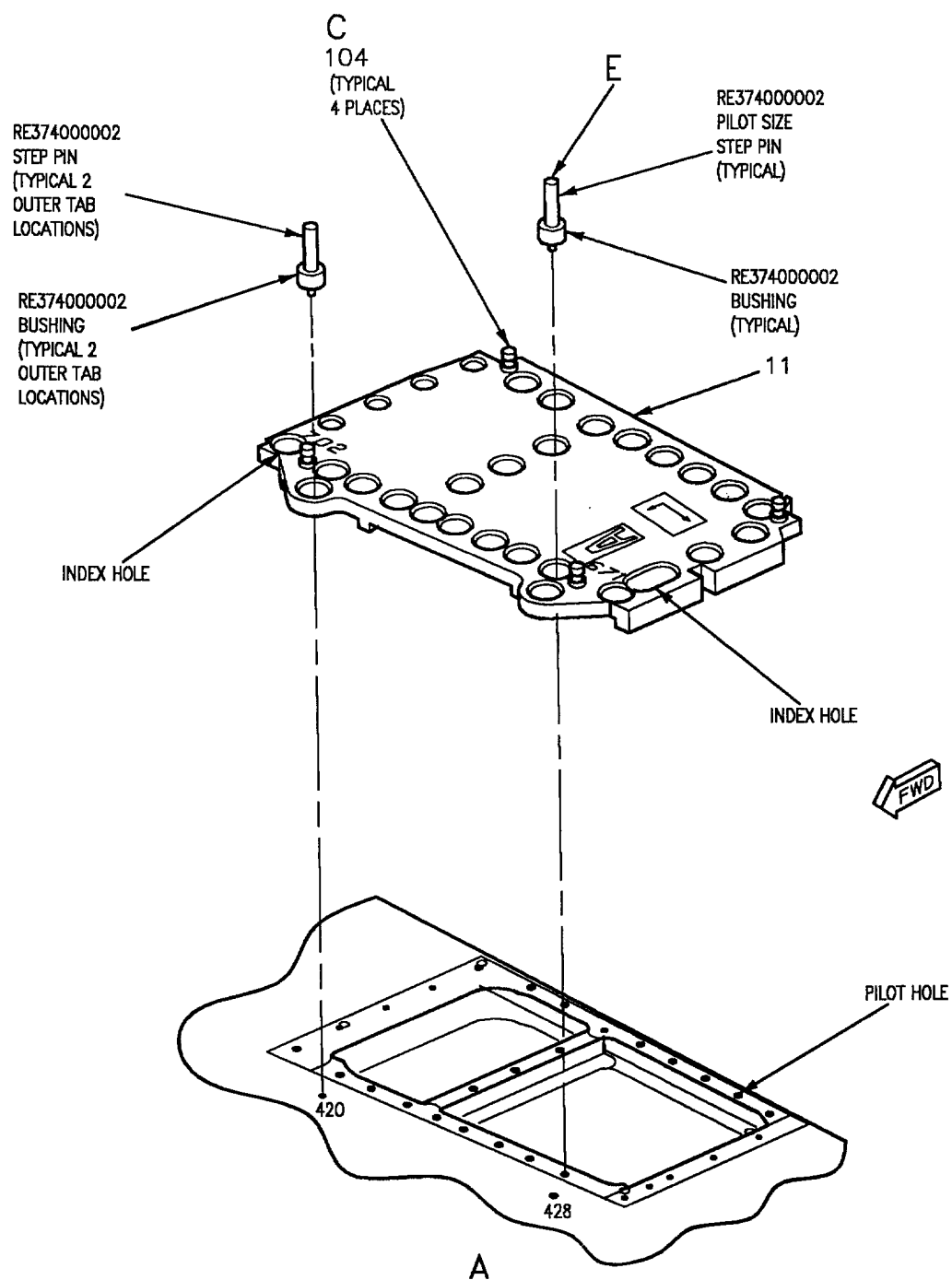
after drilling each hole to prevent door from shifting, view F.

x. Remove sequence B bonded assembly (detail 12).

y. Reinstall numbered fasteners 420 and 428 in wing skin.

z. Install fasteners and apply finish system per Replacements (WP011 00).

aa. Install skin.



11010301

Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure (Sheet 1)

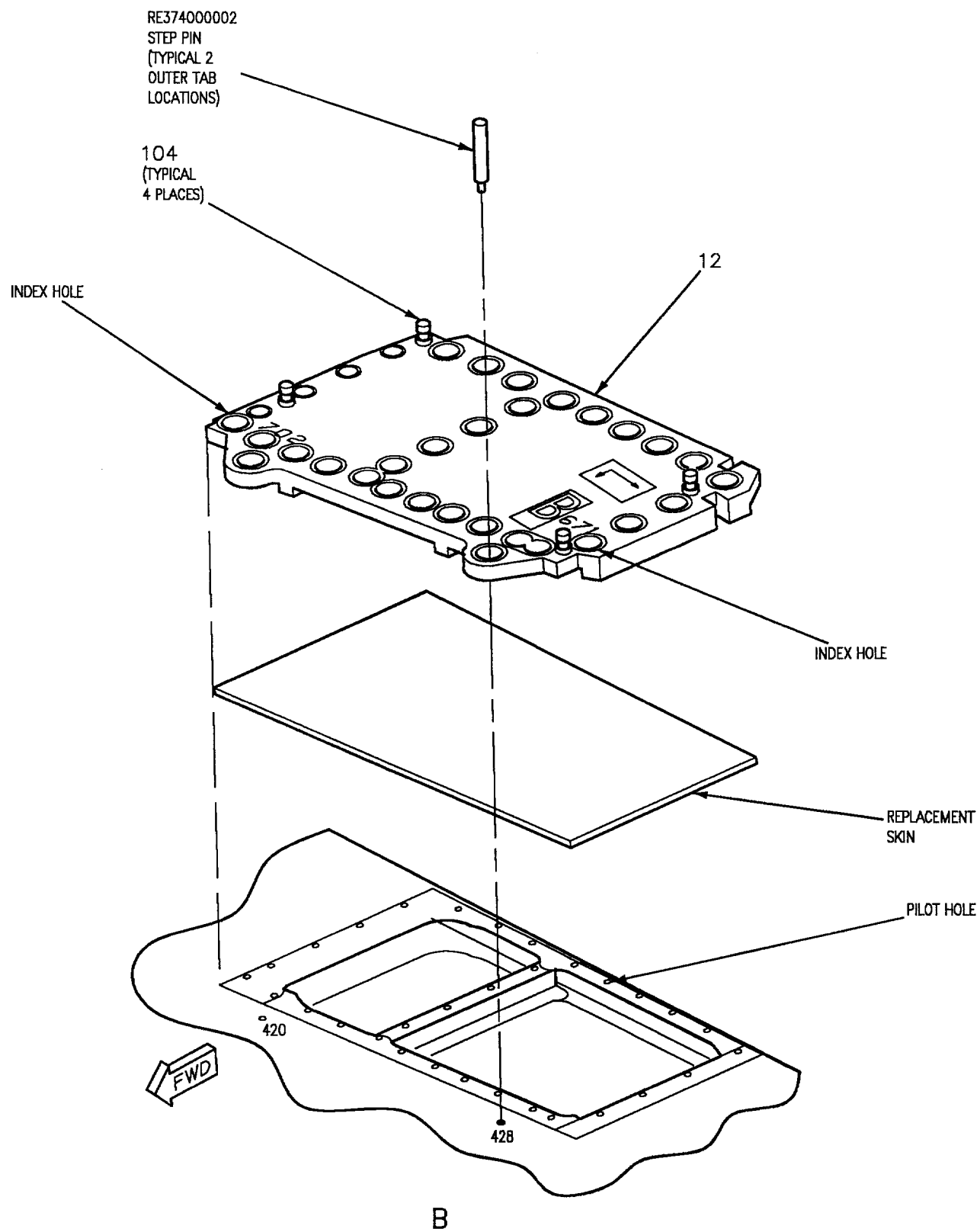


Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure  
(Sheet 2)

11010302

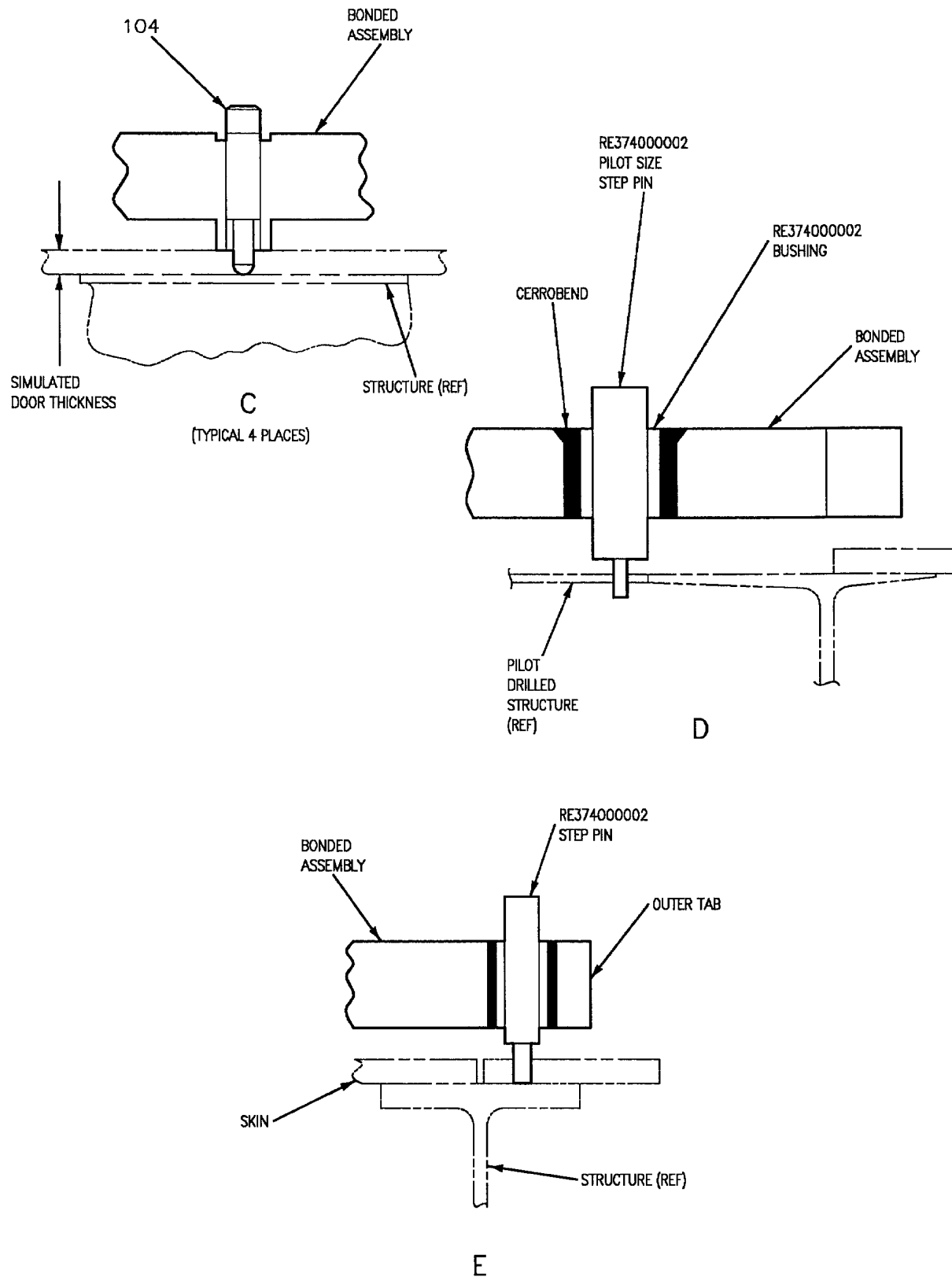


Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure (Sheet 3)

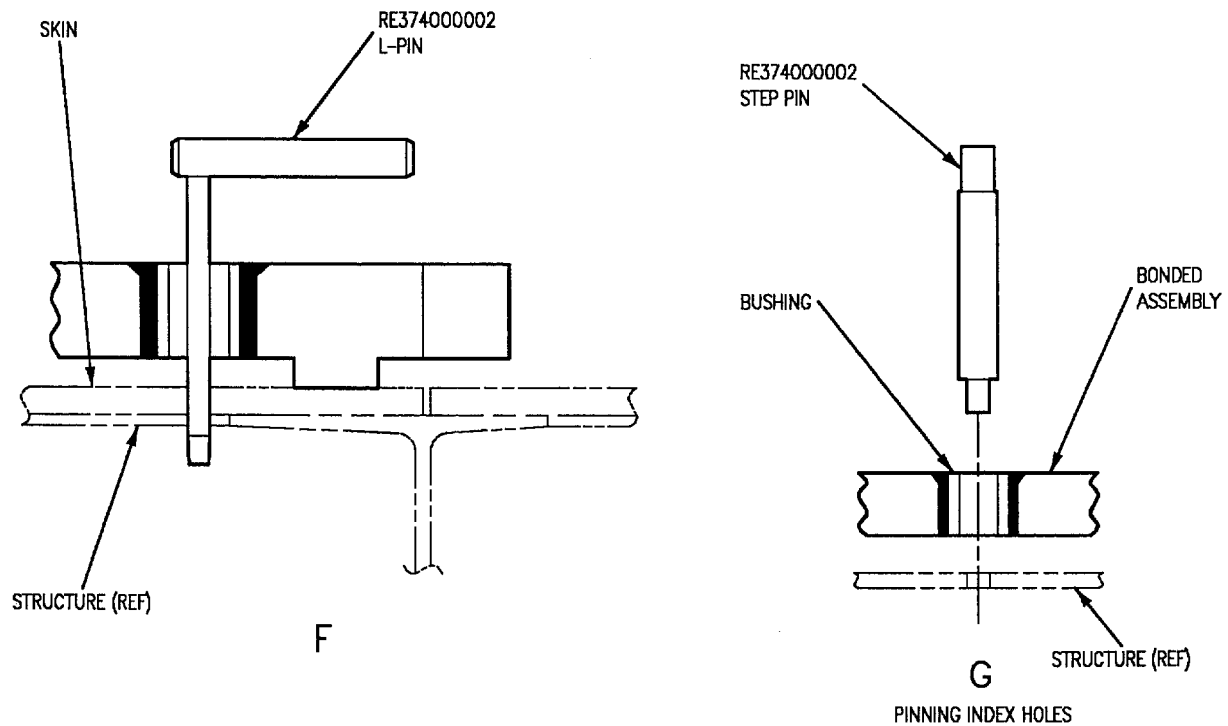
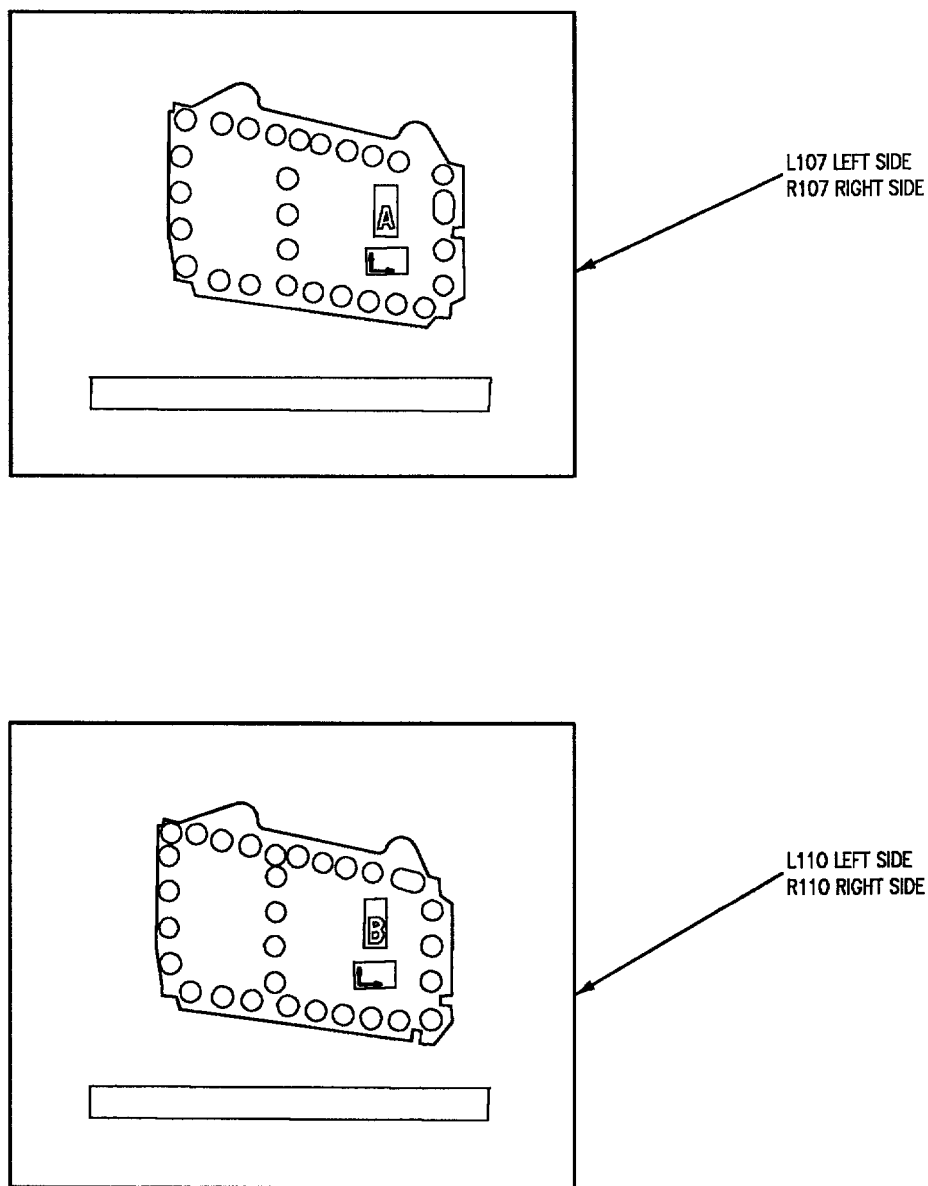


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">1</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">1</div> <div style="border: 1px solid black; padding: 2px;">1</div> </div>	518	0.2500	126	121
	532	0.2500	126	121
	370	0.2500	126	121
	382	0.2500	126	121
	567	0.2500	126	121

1 OUTER INDEX HOLES IN ADJACENT SKIN.

Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure  
(Sheet 4)

TABLE 2. DETAILS OF RE374000002 USED FOR PINNING DRILLED HOLES			
HOLE SIZE	NOMINAL	FIRST OVERSIZE	SECOND OVERSIZE
0.1850	2	—	—



11010305

Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure  
(Sheet 5)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L107, R107	Hole Board	Sequence A reference board.
L110, R110	Hole Board	Sequence B reference board.

Figure 3. Installation of Plate Set for Drilling 74A150824 Skin and Substructure  
(Sheet 6)





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DEPOT MAINTENANCE  
STRUCTURE REPAIR  
HOLE LOCATING PLATE SET  
RE374150002-1, -2  
OUTER WING SKINS

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**Reference Material**

Structure Repair, Wing .....	A1-F18AC-SRM-210
Outer Wing Maintenance Fixture, RE174150002 .....	WP012 01
Outer Wing Skin Fasteners, Upper and Lower .....	WP014 01
Structure Repair, General Information .....	A1-F18AC-SRM-200
Accessory Kits and Spray Mist Coolant Tank .....	WP004 16
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00

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Drilling Holes in 74A150600 Upper Skin and 74A150601 Lower Skin Substructure .....	4
Installing Drill Plates in RE174150002 Maintenance Fixture .....	2

**Record of Applicable Technical Directives**

None

**1. DESCRIPTION.**

2. The outer wing shall be installed in the RE174150002 Outer Wing Maintenance Fixture to use the outer wing drill plates. The drill plates for replaceable 74A150600 upper skin and 74A150601 lower skin shall be used to locate the attach hole pattern in skin

and/or mating substructure. The plate sets contain high temperature fiberglass bonded assemblies. Hole boards are provided to show holes, hole numbers, hole diameters, repair numbers, and material of skin and substructure. Repair numbers on the hole boards are color coded to coincide with bonded assemblies and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

**Table 1. Details of RE374000002  
Accessory Kit Used for Index Holes**

Hole No.	Hole Dia.	Step Pin Detail No.	Potted Bushing
11	0.3120	119	121
49	0.2500	126	121
61	0.2495	126	121
63	0.2495	126	121
76	0.2500	126	121
133	0.2500	126	121
186	0.2495	126	121
201	0.2500	126	121
204	0.2500	126	121
345	0.2500	126	121
388	0.2495	126	121
438	0.3120	119	121
447	0.3125	119	121
464	0.3125	119	121
467	0.2500	126	121
560	0.2495	126	121
597	0.2495	126	121
599	0.2495	126	121

**3. INSTALLING DRILL PLATES IN RE174150002 MAINTENANCE FIXTURE.** See figure 1. Upper and lower skins shall be installed in RE174150002 maintenance fixture before locating and drilling holes.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Maintenance Fixture, Outer Wing	RE174150002-1, -2

### Materials Required

None

a. Load outer wing into RE174150002 maintenance fixture (WP012 01).

b. Rotate maintenance fixture to vertical position (leading edge down).

c. Attach clevis (detail 122) of RE1 to maintenance fixture using L-pins (detail 163) and hand knob (detail 121) of RE1, 2 places, view B.

d. Remove skins as required.

e. Attach hoist to applicable bonded assembly (detail 11, 12, 18, or 19) at hoist rings (detail 161), view A.

f. Hoist bonded assembly into approximate position on maintenance fixture next to structure, view A.

g. For lower skin:

(1) Attach bonded assembly to maintenance fixture by inserting L-pin (detail 171) through clevis (detail 122) of RE1 and hinge half (detail 164), 2 places, view B.

h. For upper skin:

(1) Attach bonded assembly to maintenance fixture by inserting L-pin (detail 171) through clevis (detail 122) of RE1 and hinge half (detail 167), 2 places, view C.

i. Insert T-pin (detail 169) through lower skin bonded assembly (detail 11 or 12) and locator

(detail 36) of RE1, and into upper skin bonded assembly (detail 18 or 19), view D.

**4. DRILLING HOLES IN 74A150600 UPPER SKIN AND 74A150601 LOWER SKIN.** See figure 2. These procedures are for drilling and reaming holes in replacement skins or for oversizing holes in existing skins.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002

### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend
Sealing Compound	MIL-S-83430, CLB-4

a. Make sure drill plates are installed in RE174150002 maintenance fixture per procedures, this WP.

b. Select and install RE374000002 dummy fasteners into all substructure fastener holes to be drilled, view D.

c. Tighten skin thickness adapters (detail 174 and 179) on bonded assemblies to simulate thickness of skin, view C.

d. Position sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, in place on maintenance fixture.

e. Slide bonded assembly into position against outer wing structure as required.

f. Clamp around periphery of bonded assembly and structure in maintenance fixture to secure in place.

g. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into dummy fasteners in substructure, view D.



Solder, Wire, Cerrobend

11

h. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

i. For lower skin:

(1) Remove sequence A bonded assembly (detail 11).

(2) Repeat steps c through h for sequence B bonded assembly (detail 12).

(3) Remove sequence B bonded assembly (detail 12).

j. For upper skin:

(1) Remove sequence H bonded assembly (detail 18).

(2) Repeat steps c through h for sequence J bonded assembly (detail 19).

(3) Remove sequence J bonded assembly (detail 19).

k. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Retract skin thickness adapters (details 174 and 179) on bonded assembly to allow bonded assembly to contact skin panel, view C.

(2) Position bonded assembly in approximate position on structure.

(3) Locate bonded assembly to wing structure at index holes (marked IH) using applicable RE374000002 index pins, per Table 1, view H.

(4) Secure bonded assembly to wing structure at clamping holes (marked CH) using bolts, nuts and washers, view E.

(5) Install applicable RE374000002 step pins and bushings through bonded assembly holes and into dummy fasteners in substructure, view D.

(6) Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

(7) Remove bonded assembly from wing structure.

(8) Repeat steps k(1) thru k(7) for remaining bonded assemblies.

l. Trim replacement skin.

m. Locate skin panel on structure.

n. Retract skin thickness adapters (details 174 and 179) on bonded assemblies to contact replacement skin, view F.

o. Position sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, in place on maintenance fixture.

p. Clamp around periphery of bonded assembly and structure in maintenance fixture to secure in place.

q. Drill pilot size holes in skin panel at several locations around bonded assembly, to act as key-holes, using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

r. Remove bonded assembly and skin panel from maintenance fixture.

s. Place skin panel and sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18), on a work surface or a depot furnished holding device. Place a backup device behind skin panel.

t. Key bonded assembly to skin panel by installing applicable RE374000002 pilot size step pins through bonded assembly and into skin panel pilot holes, view G.

u. Clamp around periphery of bonded assembly, skin panel, and backup device to secure for drilling.

v. Drill and ream all holes full size in skin panel using applicable hole board and applicable repair number work package per Structure, General Repair (A1-F18AC-SRM-200).

w. For lower skin:

(1) Remove sequence A bonded assembly (detail 11).

(2) Repeat steps s thru v for sequence B bonded assembly (detail 12).

(3) Remove sequence B bonded assembly (detail 12).

x. For upper skin:

(1) Remove sequence H bonded assembly (detail 18).

(2) Repeat steps s thru v for sequence J bonded assembly (detail 19).

(3) Remove sequence J bonded assembly (detail 19).

y. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Key bonded assembly to skin panel by installing applicable RE374000002 pilot size step pins through bonded assembly and into skin panel pilot holes, view G.

(2) Clamp around periphery of bonded assembly, skin panel, and backup device to secure for drilling.

(3) Drill and ream all holes full size in skin panel using applicable hole board and applicable repair number work package per Structure, General Repair (A1-F18AC-SRM-200).

(4) Repeat steps y(1) thru y(3) for remaining bonded assemblies.

z. Countersink holes in skin panel per Aircraft Structure Repair Tool Kit (A1-F18AC-SRM-200, WP004 16).

aa. Clean loose materials from skin panel and wing structure area.



Sealing Compound



6

ab. Install wing skin. For fasteners and attaching hardware (WP014 01). Install fasteners wet with sealing compound (A1-F18AC-SRM-200, WP011 00).

**5. DRILLING HOLES IN 74A150600 UPPER SKIN AND 74A150601 LOWER SKIN SUB-STRUCTURE.** See figure 3. These procedures are for drilling and reaming holes in replaced structure or for oversizing existing holes in structure.

**Support Equipment Required**

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002

**Materials Required**

Nomenclature	Specification or Part Number
Solder, Wire Sealing Compound	Cerrobend MIL-S-83430, CLB-4

a. Make sure drill plates are installed in RE174150002 maintenance fixture per procedures, this WP.

b. Removed and replace damaged substructure.

c. Position skin panel back in place on outer wing structure.

d. Reinstall several peripheral fasteners to secure skin panel in correct position.

e. Retract skin thickness adapters (details 174 and 179) on bonded assembly to allow bonded assembly to contact skin panel, view F.

f. Position sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, in place on maintenance fixture.

g. Slide bonded assembly into position against outer wing structure as required.

h. Clamp around periphery of bonded assembly and structure in maintenance fixture to secure in place.

i. Install applicable RE374000002 step pins and bushings through all required drill and index holes in bonded assembly and into skin, views D.



Solder, Wire, Cerrobend

11

j. Pot bushings in bonded assembly using melted cerrobend with a minimum of 75% fill, per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16).

k. For lower skin:

(1) Remove sequence A bonded assembly (detail 11).

(2) Repeat steps f thru j for sequence B bonded assembly (detail 12).

(3) Remove sequence B bonded assembly (detail 12).

l. For upper skin:

(1) Remove sequence H bonded assembly (detail 18).

(2) Repeat steps f thru j for sequence J bonded assembly (detail 19).

(3) Remove sequence J bonded assembly (detail 19).

m. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Retract skin thickness adapters (details 174 and 179) on bonded assembly to allow bonded assembly to contact lower skin panel, view F.

(2) Position bonded assembly in approximate position on skin panel.

(3) Locate bonded assembly to wing skin at index holes (marked IH) using applicable RE374000002 index pins, per Table 1, view H.

(4) Secure bonded assembly to wing skin at clamping holes (marked CH) using bolts, nuts and washers, view E.

(5) Install applicable RE374000002 step pins and bushings through bonded assembly holes and into holes in skin, view K.

(6) Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view K.

(7) Remove bonded assembly from wing structure.

(8) Repeat steps m(1) thru m(7) for remaining bonded assemblies.

n. Remove skin panel from wing structure.

o. Tighten skin thickness adapters (detail 174 thru 179) on bonded assembly to simulate thickness of skin, view C.

p. Install sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, per steps f thru h.

q. Drill and ream all holes full size in structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

r. For lower skin:

(1) Remove sequence A bonded assembly (detail 11).

(2) Repeat steps p thru r for sequence B bonded assembly (detail 12).

(3) Remove sequence B bonded assembly (detail 12).

s. For upper skin:

(1) Remove sequence H bonded assembly (detail 18).

(2) Repeat steps p thru r for sequence J bonded assembly (detail 19).

(3) Remove sequence J bonded assembly (detail 19).

t. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Tighten skin thickness adapters (details 174 and 179) on bonded assembly to simulate thickness of skin, view C.

(2) Position bonded assembly on structure and pin in place at index holes (marked IH) using RE374000002 index pins per Table 1, view H.

(3) Secure bonded assembly to wing skin at clamping holes (marked CH) using bolts, nuts and washers, view E.

(4) Drill and ream all holes full size in structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

(5) Remove bonded assembly from skin panel.

(6) Repeat steps t(1) thru t(5) for remaining bonded assemblies.

u. Install attaching hardware on drilled structure (WP014 01).

v. Clean loose materials from skin panel and wing structure area.



Sealing Compound



6

w. Install wing skin. For fasteners and attaching hardware (WP014 01). Install fasteners wet with sealing compound (A1-F18AC-SRM-200, WP011 00).

**6. DRILLING HOLES IN 74A150600 UPPER SKIN AND 74A150601 LOWER SKIN AND SUBSTRUCTURE.** See figure 2. These procedures are for drilling holes in replacement skin and substructure, or for oversizing existing holes in skin and substructure.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002

### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend
Sealing Compound	MIL-S-83430, CLB-4

a. Remove damaged skin.

b. Remove and replace damaged substructure.

c. Trim replacement skin.

d. Lay out fastener pattern on substructure. Inspect marked holes locations for correct edge distance.

e. Hand drill pilot hole pattern in structure.

f. Make sure drill plates are installed in RE174150002 maintenance fixture per procedures, this WP.

g. Tighten skin thickness adapters (detail 174 and 179) on bonded assemblies to simulate thickness of skin, views C.

h. Position sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, in maintenance fixture against structure.

i. Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into pilot holes in structure, views A and J.



Solder, Wire, Cerrobend

11

j. Pot bushings in bonded assembly using melted cerrobend with a minimum of 75% fill, per Hole Location Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

k. Remove sequence A bonded assembly (detail 11), or sequence H bonded assembly (detail 18) from maintenance fixture.

l. Repeat steps g thru k for sequence B bonded assembly (detail 12) for lower skin, or for sequence J bonded assembly (detail 19) for upper skin.

m. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Tighten skin thickness adapters (details 174 and 179) on bonded assembly to simulate thickness of skin, view C.

(2) Position bonded assembly on structure and pin in place at index holes (marked IH) using RE374000002 index pins per Table 1, view H.

(3) Secure bonded assembly to wing skin at clamping holes (marked CH) using bolts, nuts and washers, view E.

(4) Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into holes in structure, view J.

(5) Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75% fill per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

(6) Remove bonded assembly from wing structure.

(7) Repeat steps m(1) thru m(6) for remaining bonded assemblies.

n. Position replacement skin on pilot drilled structure and clamp in place.

o. Retract skin thickness adapters (detail 174 and 179) on bonded assembly to allow bonded assembly to contact skin, view F.

p. Position sequence A bonded assembly (detail 11) for lower skin, or sequence H bonded assembly (detail 18) for upper skin, in maintenance fixture against replacement skin.

q. Secure bonded assembly in place using holes in bonded assembly and depot furnished slave bolts at existing holes in structure, view E.

r. Drill and ream hole pattern in replacement skin and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

s. Remove sequence A bonded assembly (detail 11), or sequence H bonded assembly (detail 18).

t. Repeat steps o thru s for sequence B bonded assembly (detail 12) for lower skin, or sequence J bonded assembly (detail 19) for upper skin.

u. For sequence C thru G, and S thru V bonded assemblies for lower skin; and for sequence K thru R bonded assemblies for upper skin, as required:

(1) Retract skin thickness adapters (detail 174 and 179) on bonded assembly to allow bonded assembly to contact skin.

(2) Position bonded assembly on structure and pin in place at index holes (marked IH) using RE374000002 index pins per Table 1, view H.

(3) Secure bonded assembly to wing skin at clamping holes (marked CH) using bolts, nuts and washers, view E.

(4) Drill and ream all holes full size in structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).

(5) Remove bonded assembly from skin panel.

(6) Repeat steps u(1) thru u(5) for remaining bonded assemblies.

v. Countersink holes in skin panel per Aircraft Structure Repair Tool Kit (A1-F18AC-SRM-200, WP004 16).

w. Install attaching hardware on drilled structure (WP014 01).

x. Clean loose materials from skin panel and wing structure area.

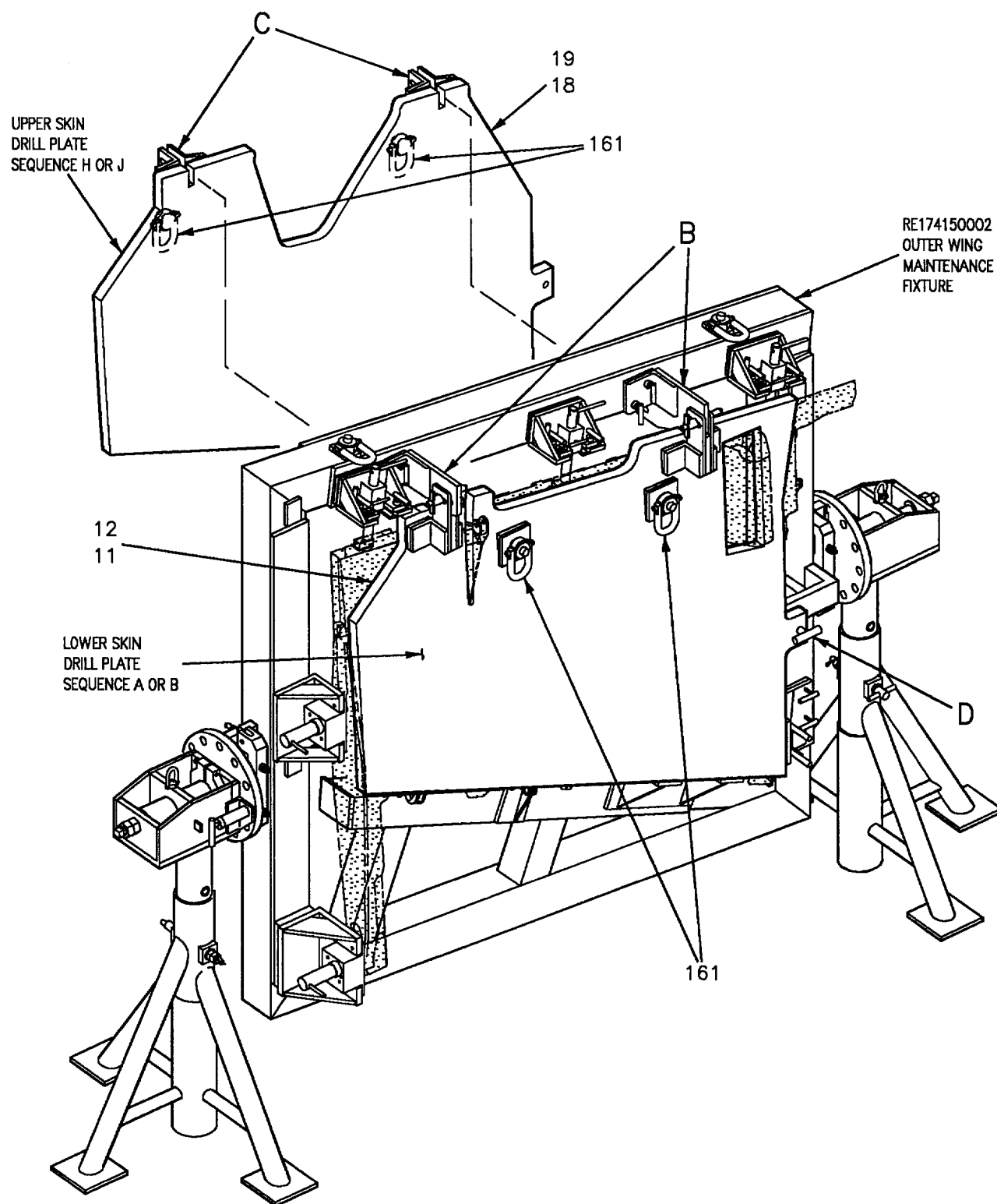


Sealing Compound

6

y. Install wing skin. For fasteners and attaching hardware (WP014 01). Install fasteners wet with sealing compound (A1-F18AC-SRM-200, WP011 00).



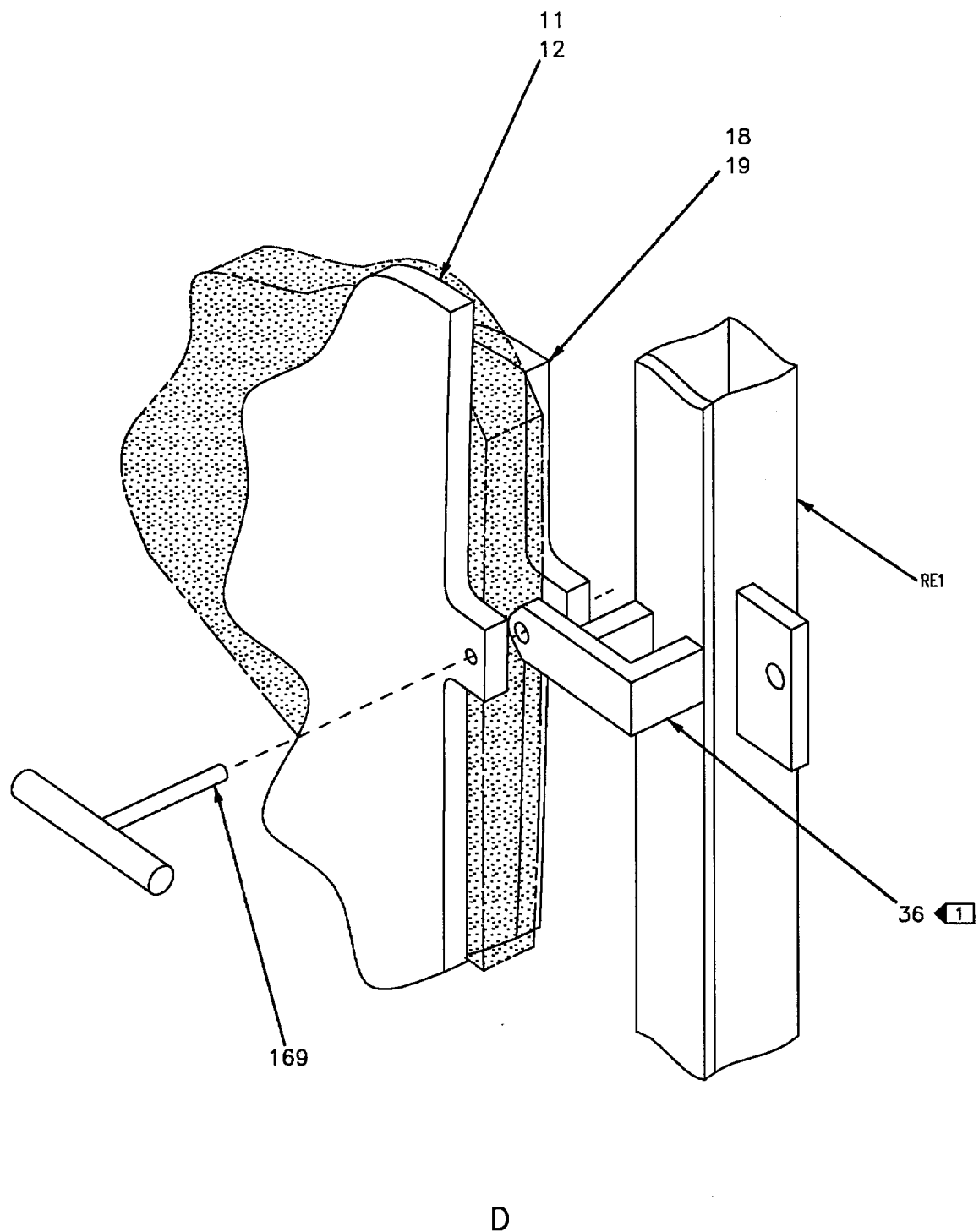


A

Figure 1. Installing Drill Plates in RE174150002 Maintenance Fixture (Sheet 1)

11020101





11020103

Figure 1. Installing Drill Plates in RE174150002 Maintenance Fixture (Sheet 3)






Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
18	Sequence H Bonded Assembly	Used to locate and drill hole pattern in door and structure.
19	Sequence J Bonded Assembly	Used to locate and drill hole pattern in door and structure.
36 	Locator	Locates sequence A, B, H and J bonded assemblies to maintenance fixture at inboard edge of skin.
121 	Hand Knob	Secures clevis to frame of maintenance fixture.
122 	Clevis	Attaching point for bonded assemblies.
161 	Hoist Ring	Lifts sequence A, B, H and J bonded assemblies.
163	L-Pin	Locates and attaches clevis to frame of maintenance fixture.
164	Hinge Half	Attaches and locates lower skin bonded assemblies to maintenance fixture.
167	Hinge Half	Attaches and locates upper skin bonded assemblies to maintenance fixture.
169	T-Pin	Secures sequence A, B, H and J bonded assemblies to maintenance fixture at inboard edge of skins.
171	L-Pin	Secures sequence A, B, H and J bonded assemblies to maintenance fixture.
<p style="text-align: center;"><b>LEGEND</b></p> <p> Part of RE174150002 Maintenance Fixture.</p>		

Figure 1. Installing Drill Plates in RE174150002 Maintenance Fixture (Sheet 4)

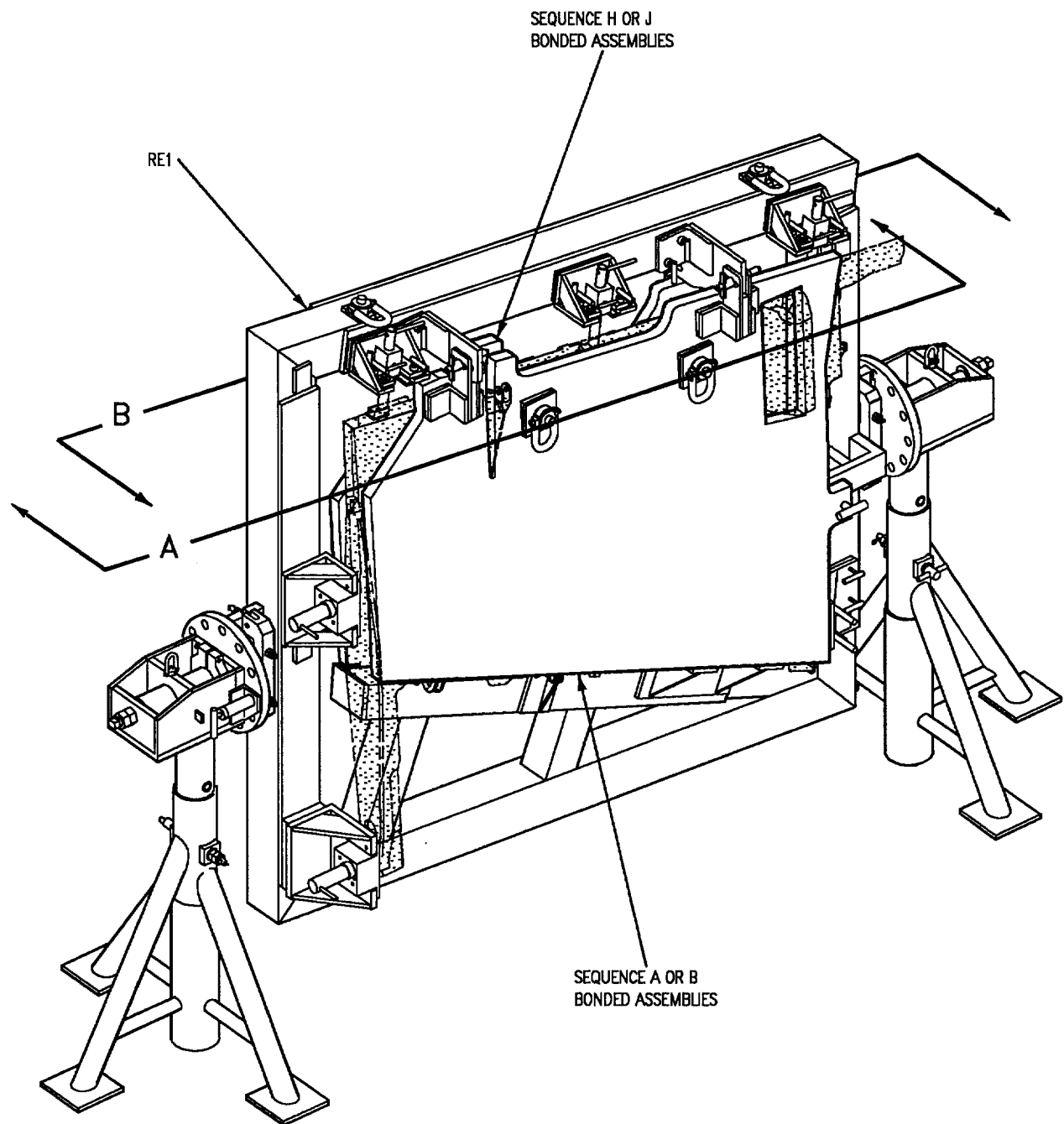


Figure 2. Drilling Holes in Skin or Substructure (Sheet 1)

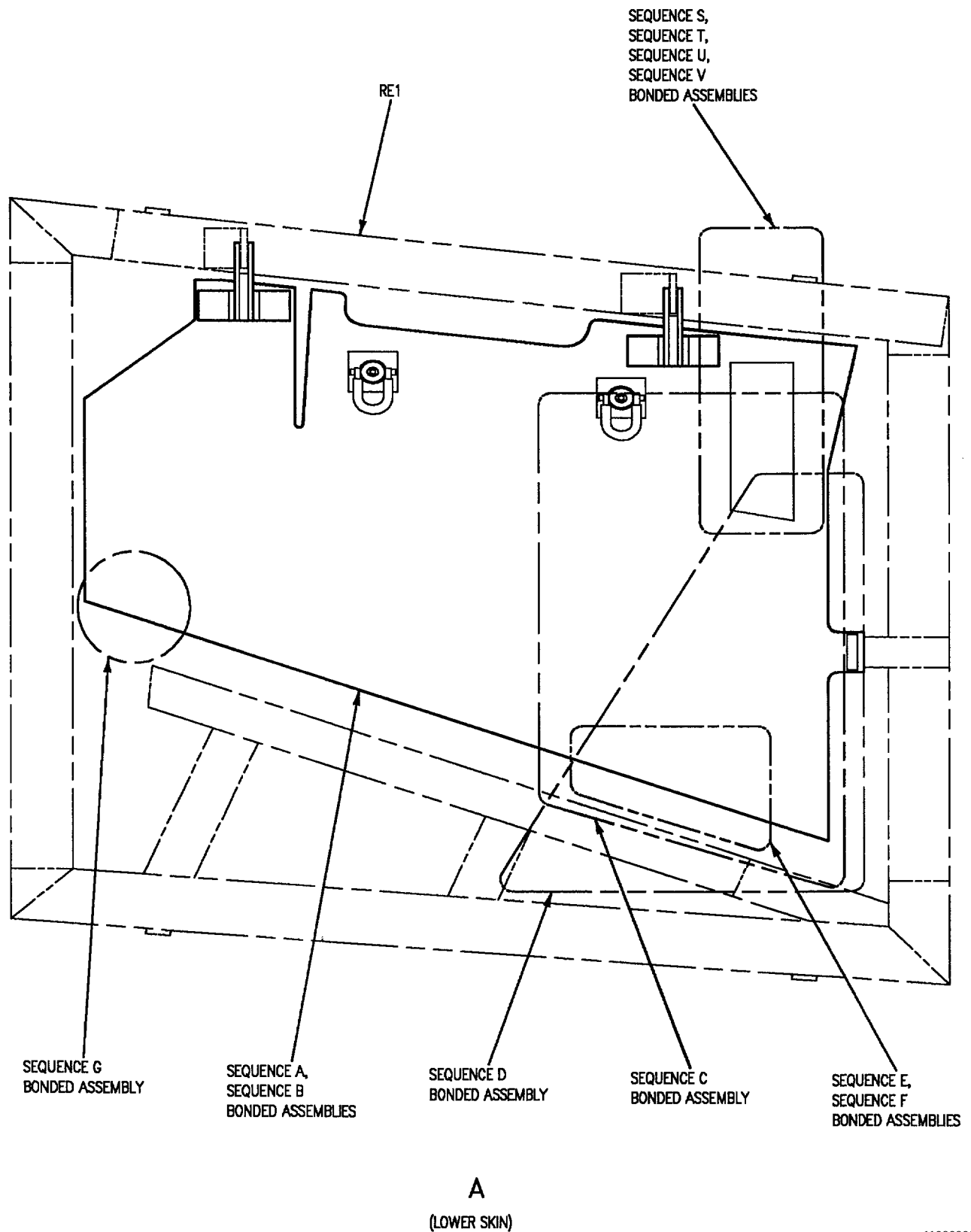


Figure 2. Drilling Holes in Skin or Substructure (Sheet 2)

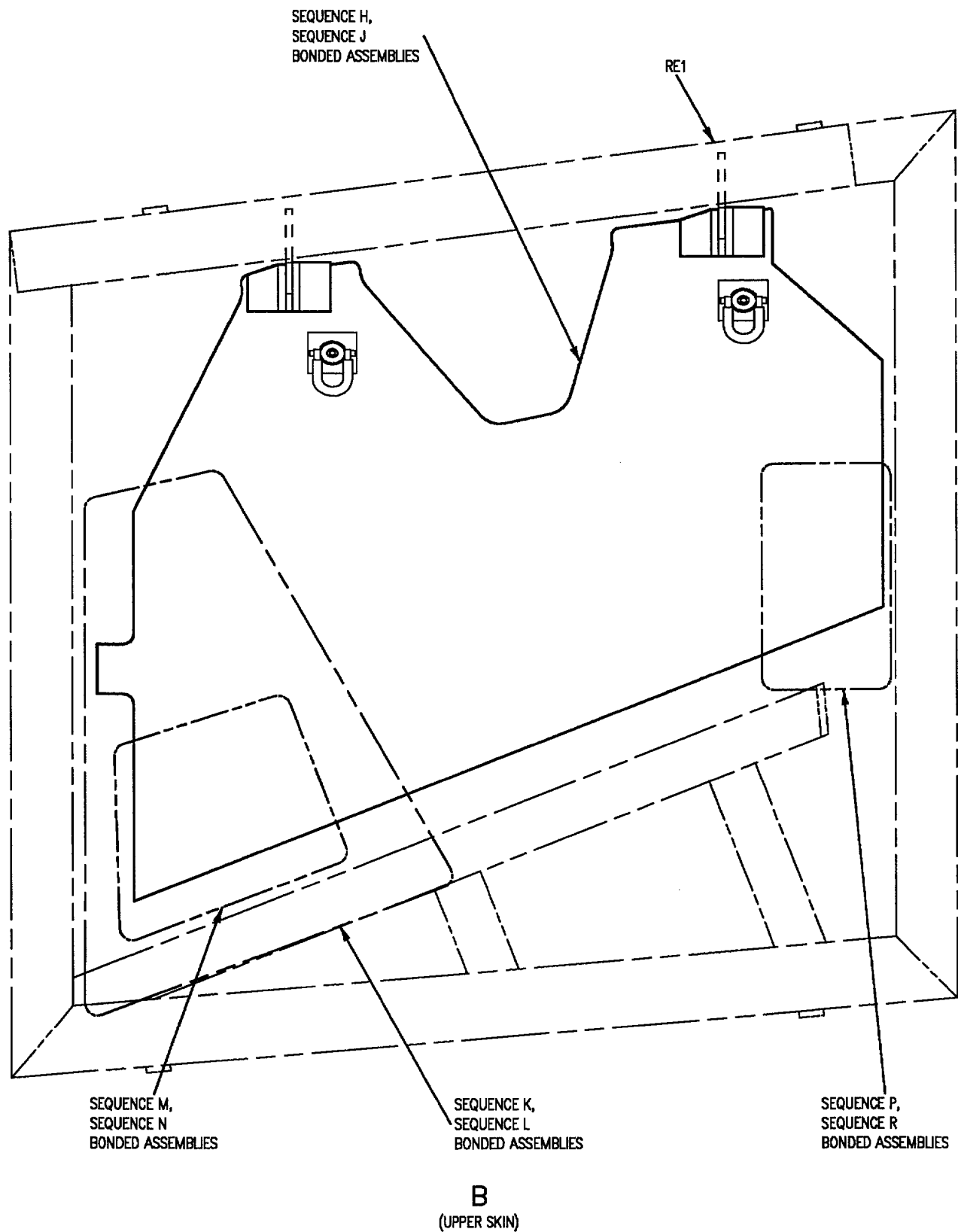
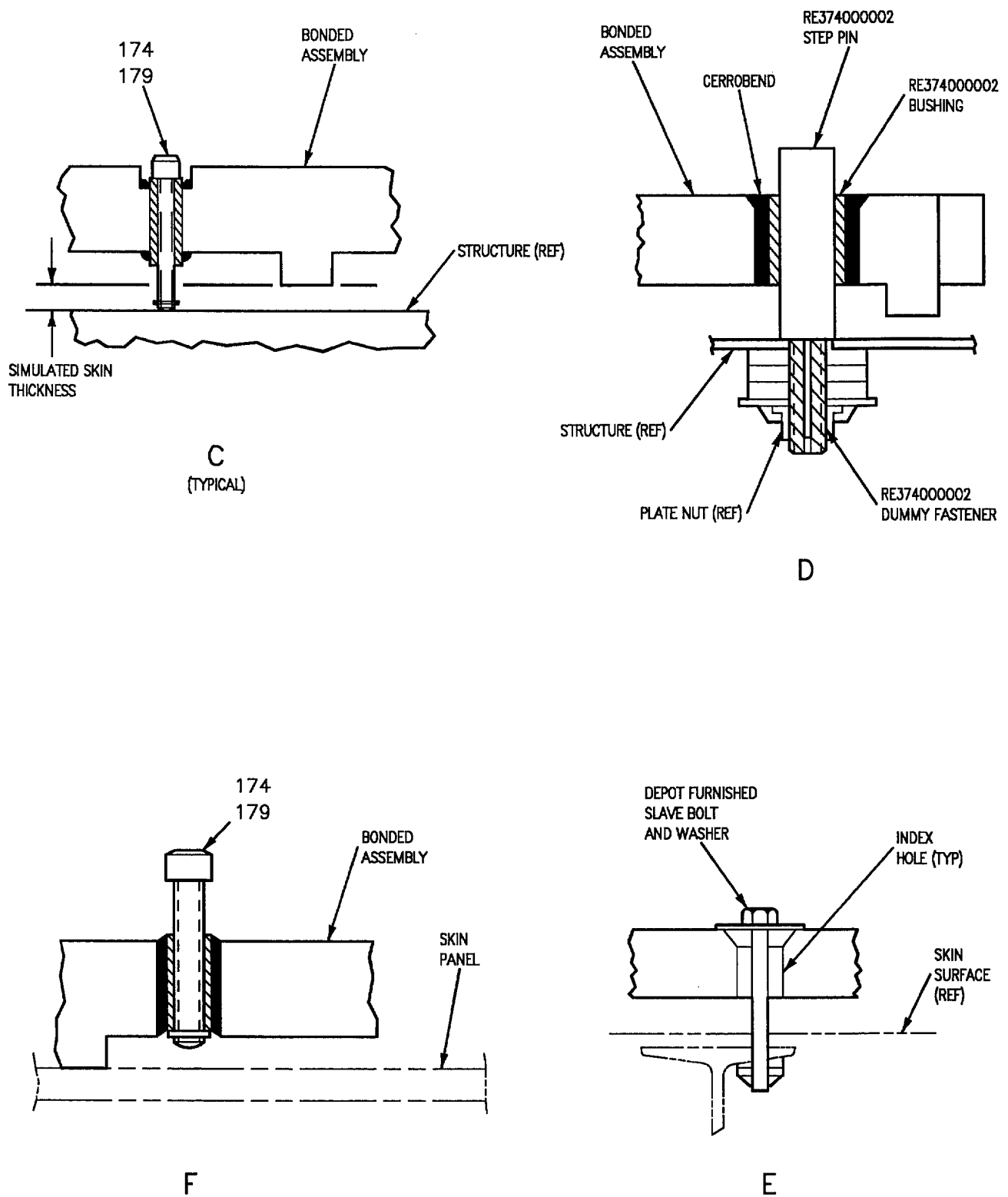


Figure 2. Drilling Holes in Skin or Substructure (Sheet 3)



### Figure 2. Drilling Holes in Skin or Substructure (Sheet 4)



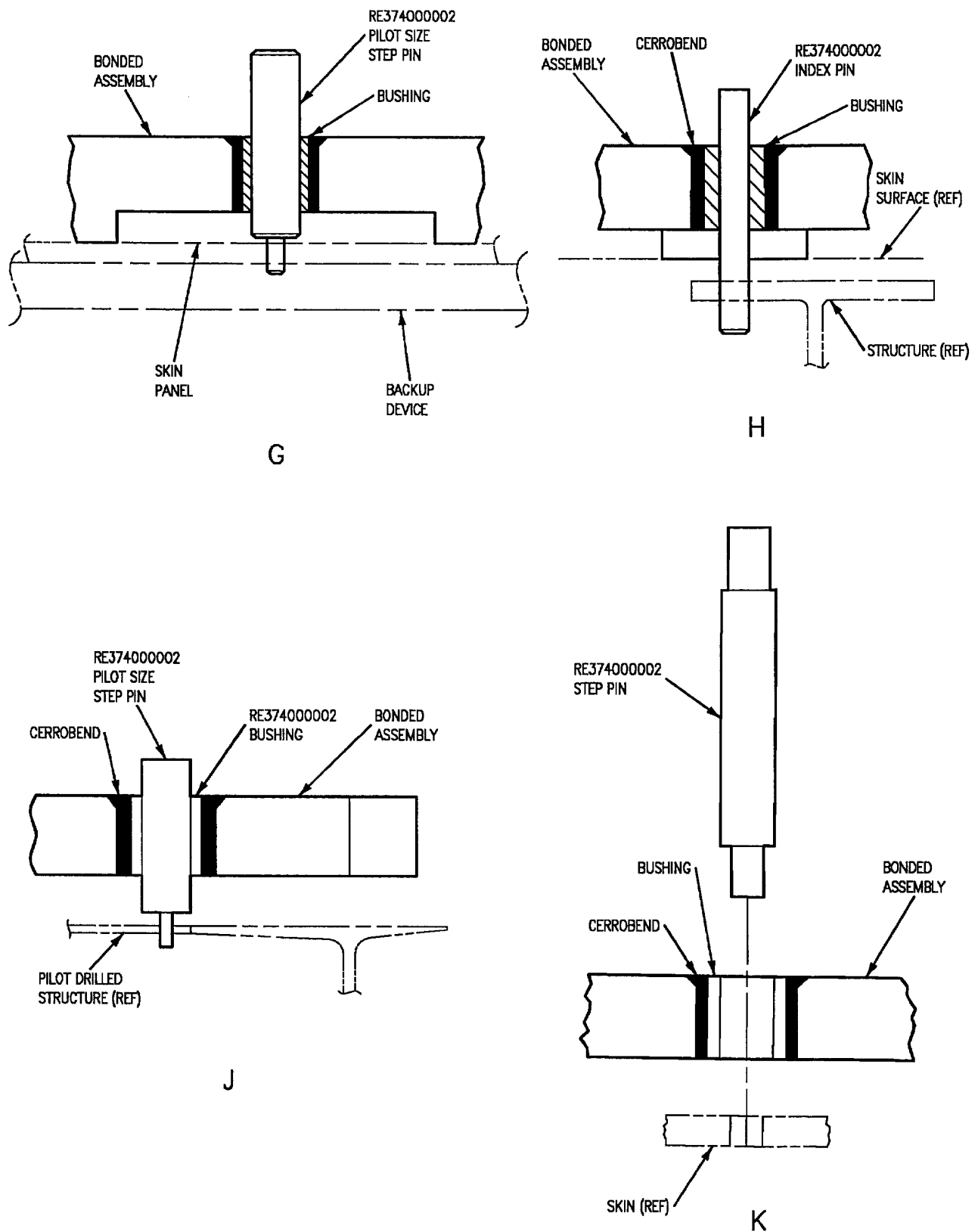


Figure 2. Drilling Holes in Skin or Substructure (Sheet 5)



Figure 2. Drilling Holes in Skin or Substructure (Sheet 6)

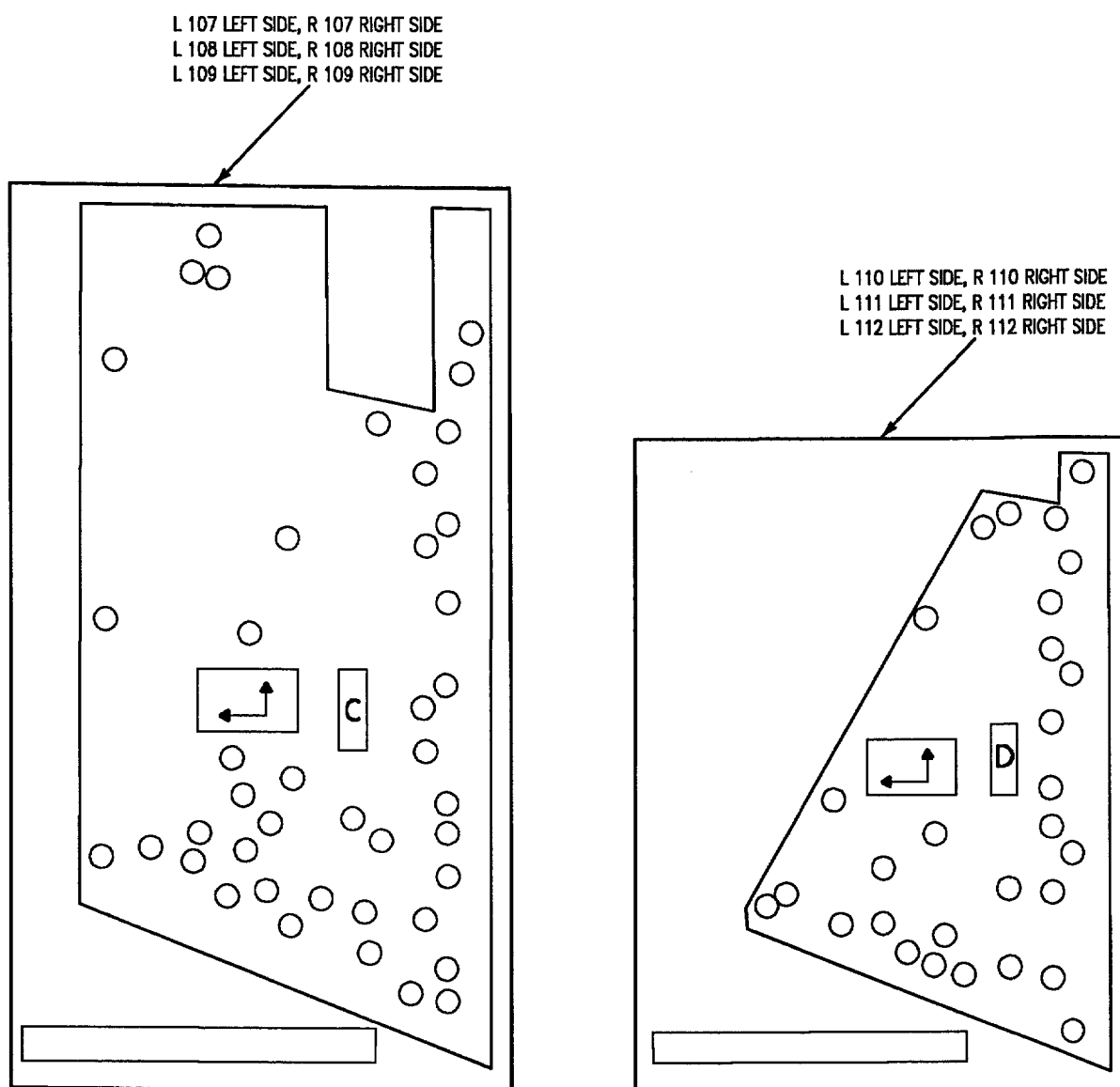


Figure 2. Drilling Holes in Skin or Substructure (Sheet 7)

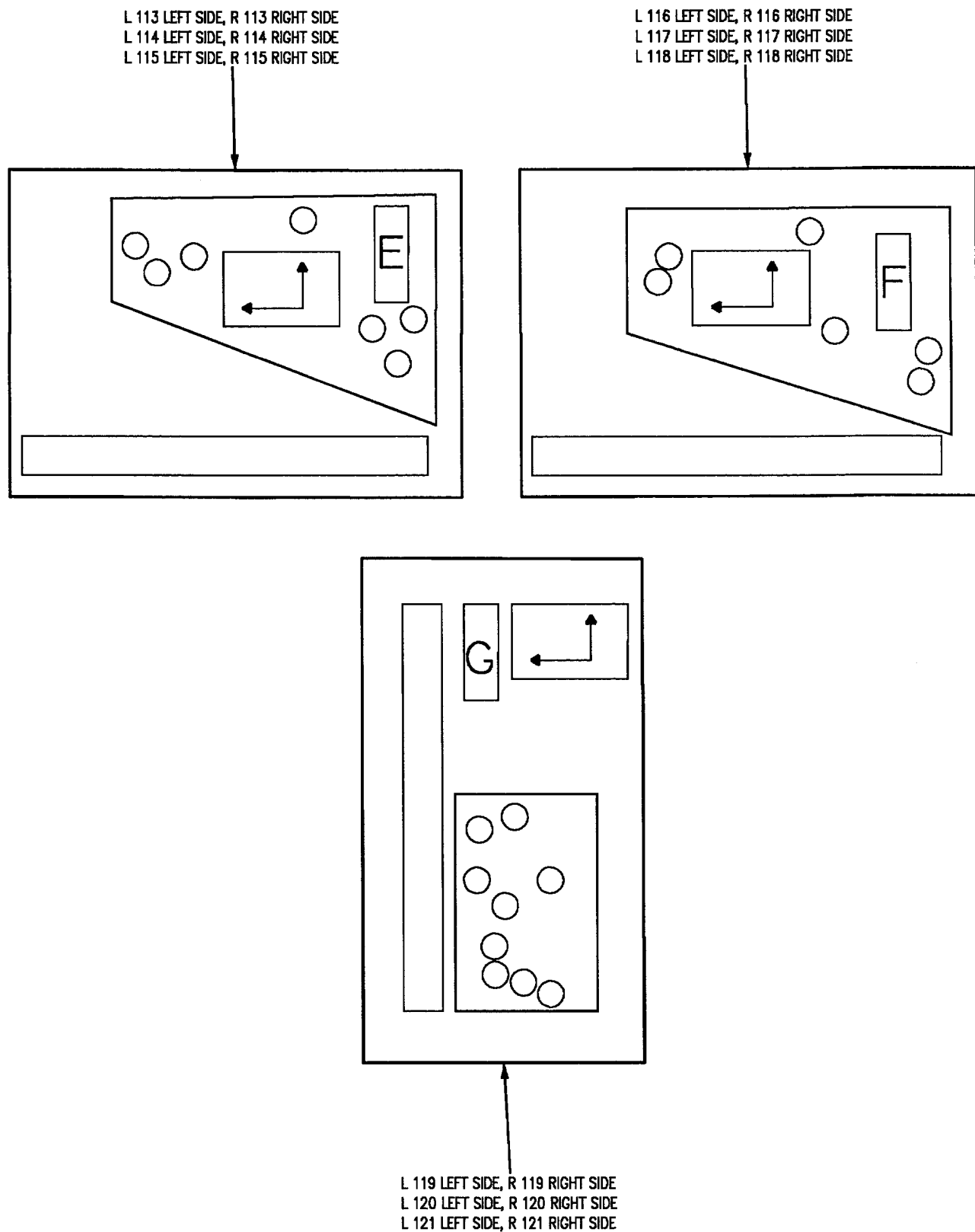


Figure 2. Drilling Holes in Skin or Substructure (Sheet 8)

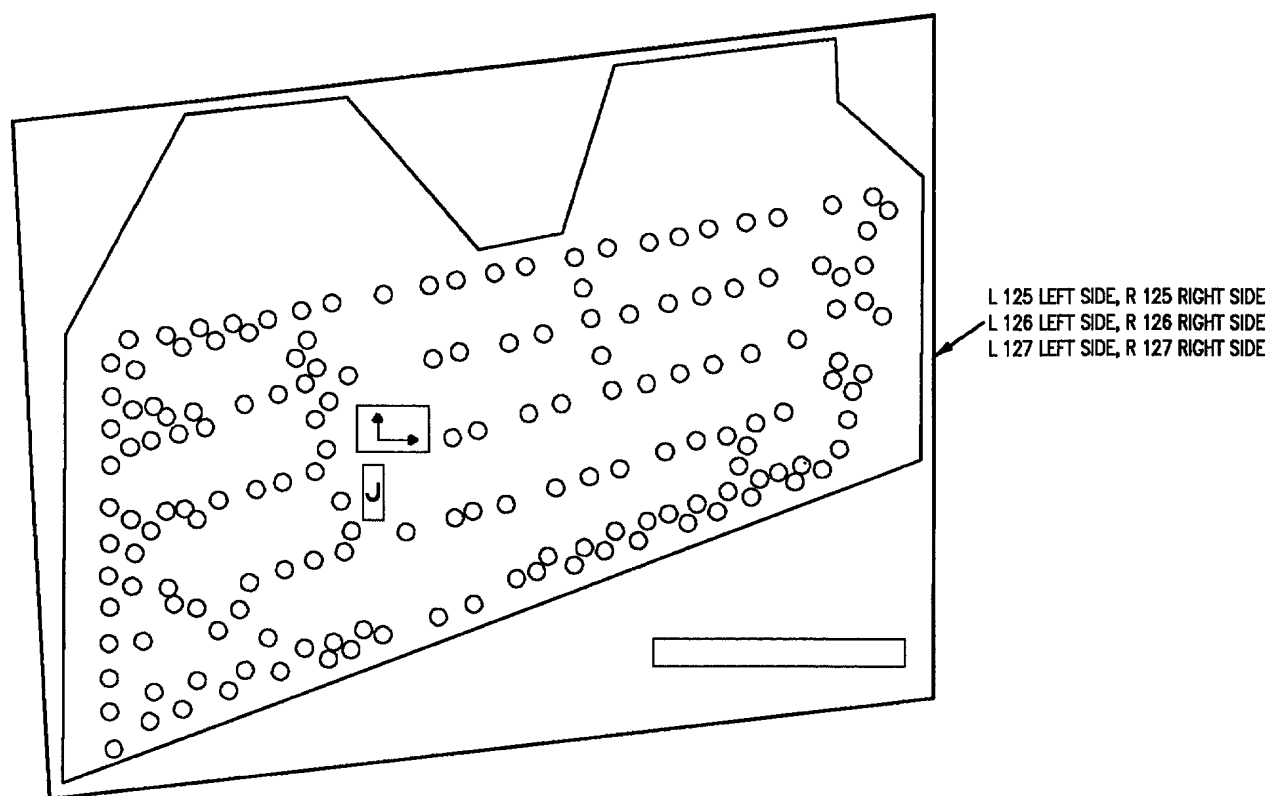
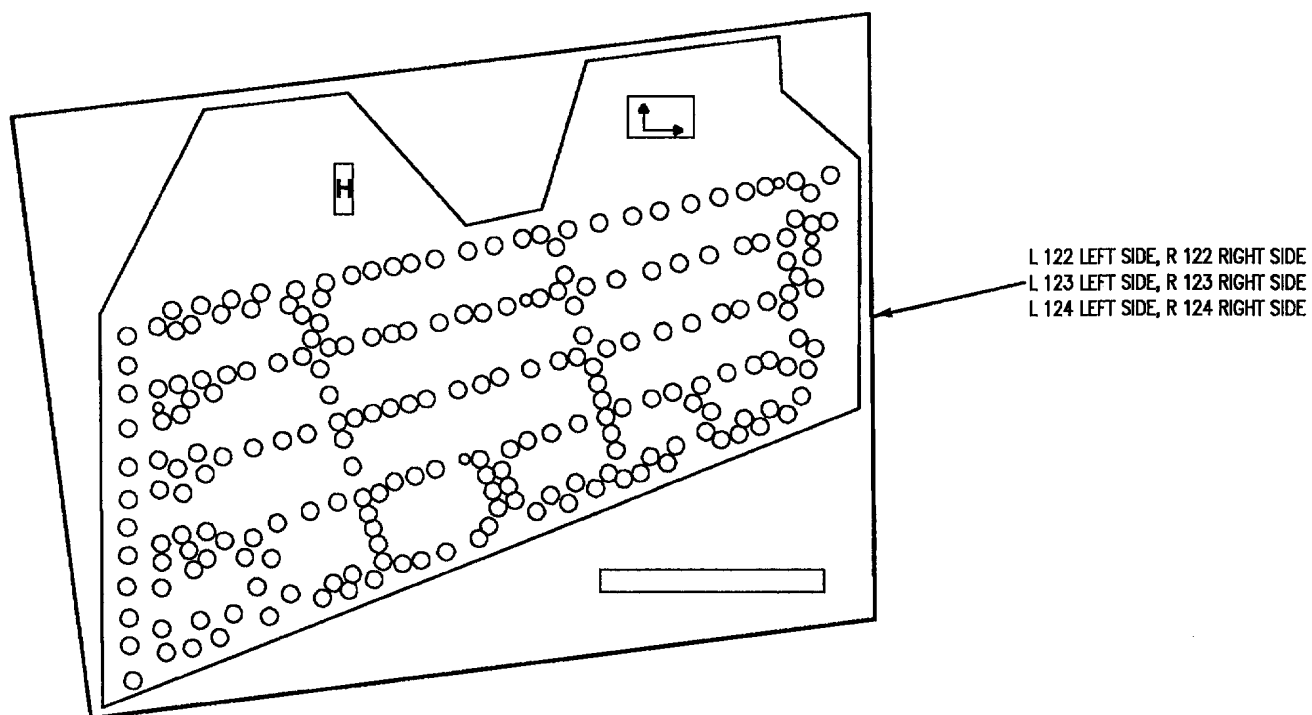
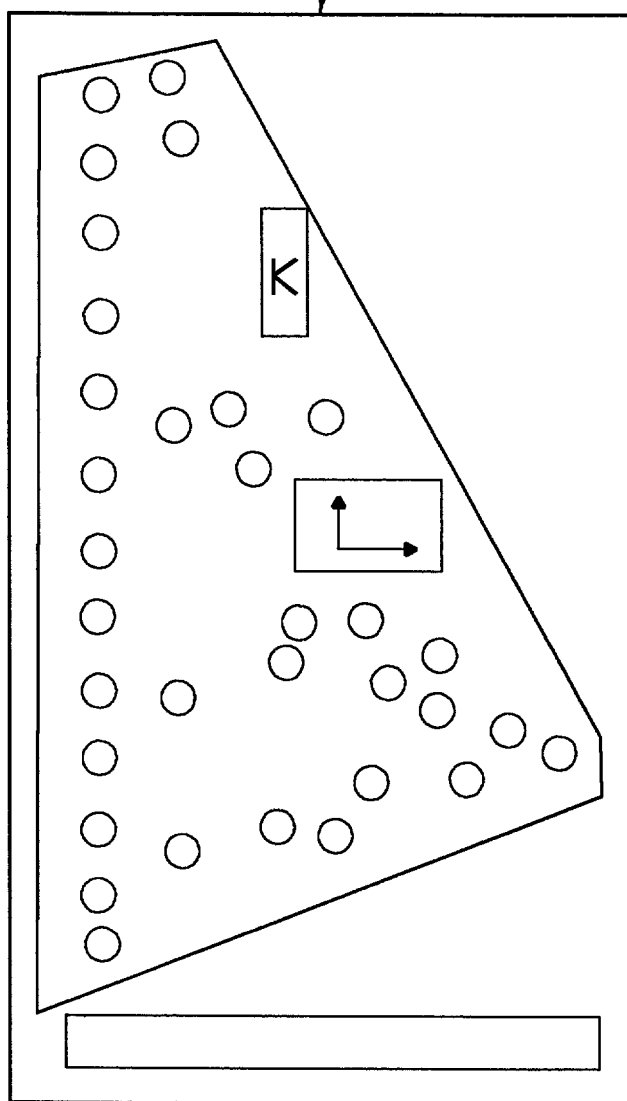


Figure 2. Drilling Holes in Skin or Substructure (Sheet 9)

L 128 LEFT SIDE, R 128 RIGHT SIDE  
L 129 LEFT SIDE, R 129 RIGHT SIDE  
L 130 LEFT SIDE, R 130 RIGHT SIDE



L 131 LEFT SIDE, R 131 RIGHT SIDE  
L 132 LEFT SIDE, R 132 RIGHT SIDE  
L 133 LEFT SIDE, R 133 RIGHT SIDE

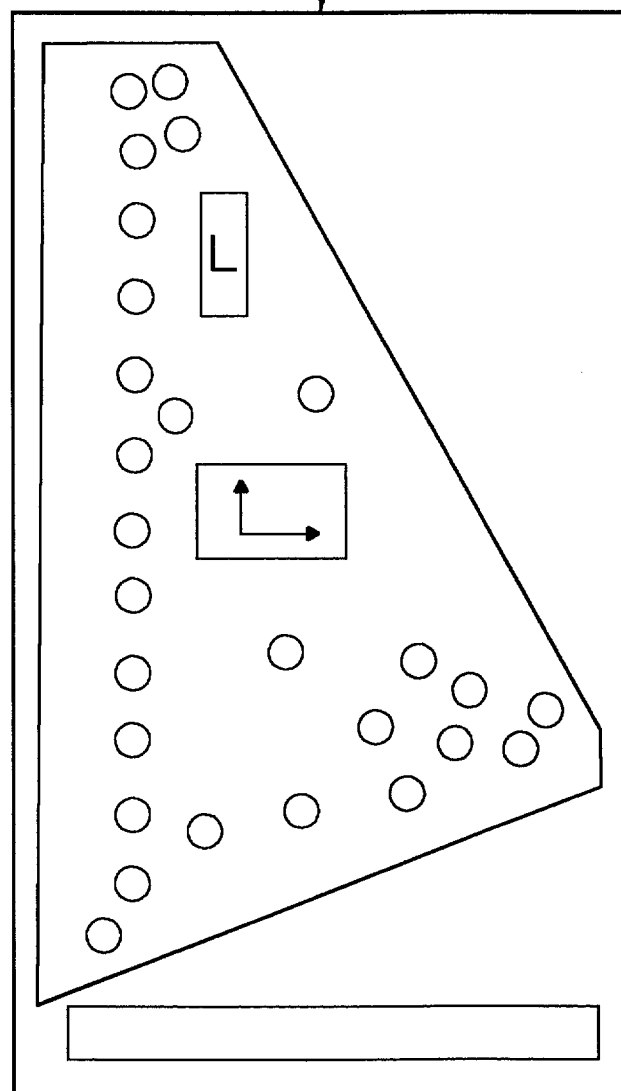
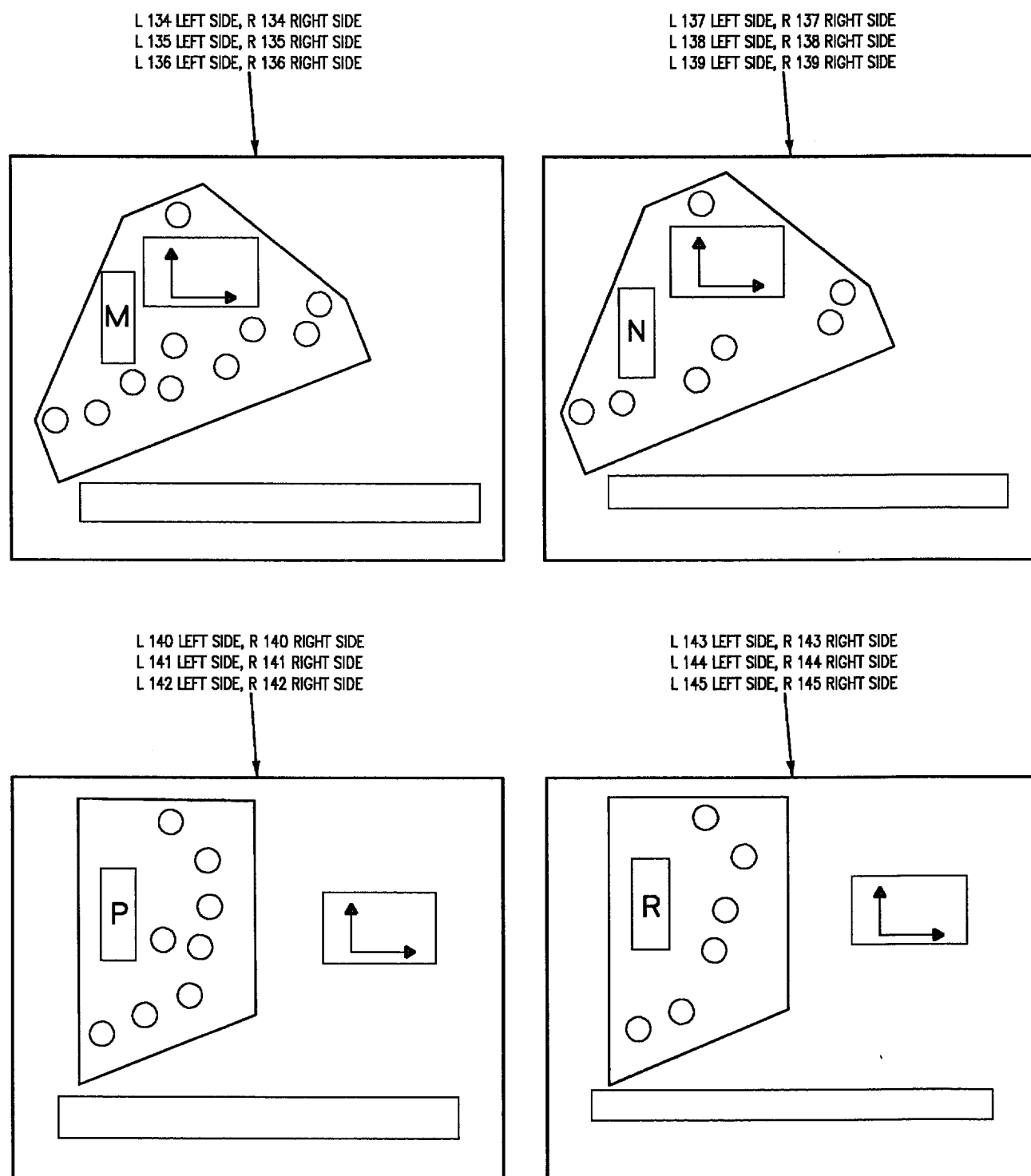


Figure 2. Drilling Holes in Skin or Substructure (Sheet 10)



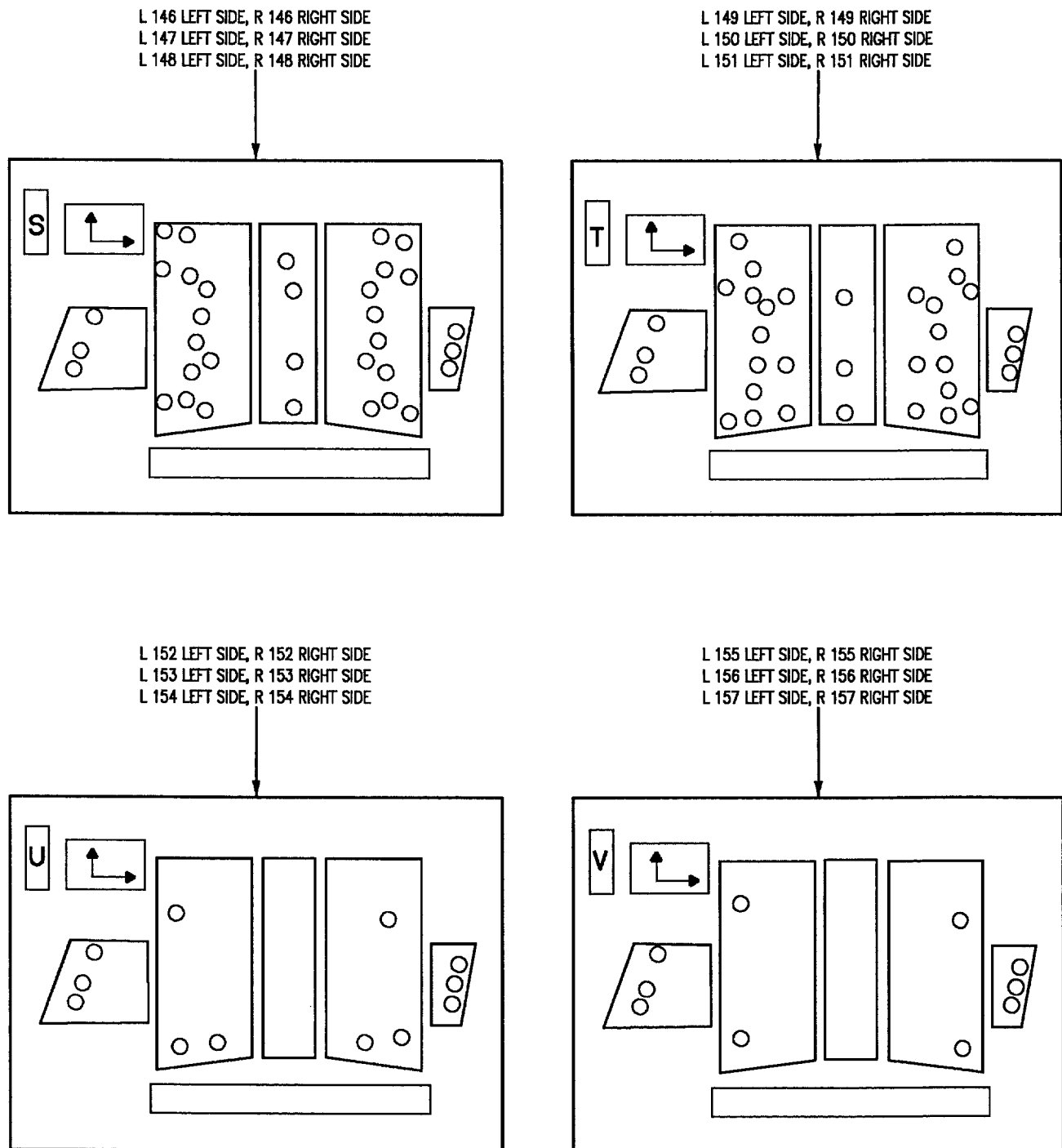


Figure 2. Drilling Holes in Skin or Substructure (Sheet 12)



Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
13	Sequence C Bonded Assembly	Used to locate and drill hole pattern in door and structure.
14	Sequence D Bonded Assembly	Used to locate and drill hole pattern in door and structure.
15	Sequence E Bonded Assembly	Used to locate and drill hole pattern in door and structure.
16	Sequence F Bonded Assembly	Used to locate and drill hole pattern in door and structure.
17	Sequence G Bonded Assembly	Used to locate and drill hole pattern in door and structure.
18	Sequence H Bonded Assembly	Used to locate and drill hole pattern in door and structure.
19	Sequence J Bonded Assembly	Used to locate and drill hole pattern in door and structure.
20	Sequence K Bonded Assembly	Used to locate and drill hole pattern in door and structure.
21	Sequence L Bonded Assembly	Used to locate and drill hole pattern in door and structure.
22	Sequence M Bonded Assembly	Used to locate and drill hole pattern in door and structure.
23	Sequence N Bonded Assembly	Used to locate and drill hole pattern in door and structure.
24	Sequence P Bonded Assembly	Used to locate and drill hole pattern in door and structure.
25	Sequence R Bonded Assembly	Used to locate and drill hole pattern in door and structure.
26	Sequence S Bonded Assembly	Used to locate and drill hole pattern in door and structure.

Figure 2. Drilling Holes in Skins or Substructure (Sheet 13)

Detail No.	Name	Function
27	Sequence T Bonded Assembly	Used to locate and drill hole pattern in door and structure.
28	Sequence U Bonded Assembly	Used to locate and drill hole pattern in door and structure.
29	Sequence V Bonded Assembly	Used to locate and drill hole pattern in door and structure.
174, 179	Skin Thickness Adapters	Simulates thickness of door on structure.
L101, R101 L102, R102, L103, R103	Hole Board	Sequence A reference board.
L104, R104 L105, R105 L106, R106	Hole Board	Sequence B reference board.
L107, R107 L108, R108 L109, R109	Hole Board	Sequence C reference board.
L110, R110 L111, R111 L112, R112	Hole Board	Sequence D reference board.
L113, R113 L114, R114 L115, R115	Hole Board	Sequence E reference board.
L116, R116 L117, R117 L118, R118	Hole Board	Sequence F reference board.
L119, R119 L120, R120 L121, R121	Hole Board	Sequence G reference board.
L122, R122 L123, R123 L124, R124	Hole Board	Sequence H reference board.
L125, R125 L126, R126 L127, R127	Hole Board	Sequence J reference board.

Figure 2. Drilling Holes in Skins or Substructure (Sheet 14)

DETAIL NO.	NAME	FUNCTION
L128, R128 L129, R129 L130, R130	Hole Board	Sequence K reference board.
L131, R131 L132, R132 L133, R133	Hole Board	Sequence L reference board.
L134, R134 L135, R135 L136, R136	Hole Board	Sequence M reference board.
L137, R137 L138, R138 L139, R139	Hole Board	Sequence N reference board.
L140, R140 L141, R141 L142, R142	Hole Board	Sequence P reference board.
L143, R143 L144, R144 L145, R145	Hole Board	Sequence R reference board.
L146, R146 L147, R147 L148, R148	Hole Board	Sequence S reference board.
L149, R149 L150, R150 L151, R151	Hole Board	Sequence T reference board.
L152, R152 L153, R153 L154, R154	Hole Board	Sequence U reference board.
L155, R155 L156, R156 L157, R157	Hole Board	Sequence V reference board.

Figure 2. Drilling Holes in Skins or Substructure (Sheet 15)



## ORGANIZATIONAL, AND DEPOT MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING STRUCTURE

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Chemical Treatment .....	WP008 00
Form In Place Sealing .....	WP010 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Integrated Flight Controls .....	A1-F18AC-570-300
Aileron Servocylinder (84A-U019 or 84A-V020) .....	WP011 00
Wing Fold Transmission (17AAU501 or 17AAV502) .....	WP060 00
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Nondestructive Inspection .....	A1-F18AC-SRM-300
Magnetic Particle Method .....	WP006 00
Structure Illustrated Parts Breakdown Wing .....	A1-F18AC-SRM-410
Structure Assembly - Wing, Outer .....	FIG 008 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant - Preparation and Application .....	WP011 00
Structure Repair - Typical Repairs .....	A1-F18AC-SRM-250
Blending .....	WP038 00

## Alphabetical Index

Subject	Page No.
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Negligible Damage .....	2
Repairable Damage .....	2
Repairs .....	2
Aileron Servocylinder Antirotation Bushing Repair .....	2
Bushings, Outboard Leading Edge Flap Hinges, Removal and Installation .....	3
Corrosion Damage Repair For Structure Under Doors 83 and 84 .....	4
Wing Fold Transmission Rod, Cadmium Plating Repair .....	2

## Record of Applicable Technical Directives

None

1. **DAMAGE EVALUATION.** See figures 1 and 2.

2. The figure identifies types of material used. The data shown can be used to analyze the damage. Locating and

determining size of damage by visual method is organizational maintenance. An engineering disposition is depot maintenance.

3. **NEGLIGIBLE DAMAGE.** Damage requires depot engineering disposition.

4. **REPAIRABLE DAMAGE.** Damage requires depot engineering disposition.

### 5. REPAIRS.

6. Repairs not listed below require depot engineering disposition.

7. **WING FOLD TRANSMISSION ROD, CADMIUM PLATING REPAIR.** Cadmium plating shall be replaced if worn or damaged. Replacement of cadmium plating is intermediate level maintenance. For removal and installation, and part information (A1-F18AC-570-300, WP060 00).

### Support Equipment Required

None

### Materials Required

None

a. Remove worn or damaged plating from rod.

b. Do NDI on unplated rod per Magnetic Particle Method (A1-F18AC-SRM-300, WP006 00).

c. If rod is damaged, get replacement rod and go to step f. If rod is undamaged, continue with next step.

d. Measure diameter of unplated rod.

(1) If diameter is less than 0.4515, get replacement rod and go to step f.

(2) If diameter is equal to or more than 0.4515, but less than 0.4518, apply cadmium plating to rod.

### NOTE

Nominal rod diameter after cadmium plating is 0.4525, +0.0000, -0.0007.

e. Measure newly plated rod to make sure it is within nominal diameter.

f. Install rod.

8. **AILERON SERVOCYLINDER ANTIROTATION BUSHING REPAIR.** See figure 3.

9. The 74A150739-2003, -2004 Antirotation Bushing is interchangeable with the assembly of 74A150739-2005 Bushing and 74A150864-2002, -2001, Antirotation Plate, respectively. The two part assembly is preferred for replacement, with each part separately replaceable. Cold shrink installation of bushing is depot level maintenance.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Liquid Nitrogen Chamber	-

### Materials Required

Nomenclature	Specification or Part Number
Bonding Primer	PR182
Bushing	ST4M166-10-108
Cheesecloth	CCC-C-440, Type 1, Class 1
Cleaning Compound	MIL-C-38736
Isopropyl Alcohol	TT-I-735, Grade 1
Nitrogen, Technical	BB-N-411, Type 2, Class 1, Grade B
Sealing Compound	MIL-S-83430

a. Remove aileron servocylinder (A1-F18AC-570-300, WP011 00).

b. Remove damaged antirotation bushing from in-board hinge half assembly by pressing out and remove through top of hinge half, view A.

c. Inspect bushing hole in hinge half assembly for correct diameter, view B. If hole is not within tolerance, a depot engineering disposition is required.



Cleaning Compound

8

d. If hole is within tolerance, clean hole with MIL-C-38736 cleaning compound.

e. Get replacement part.



Bonding Primer

16

f. Apply PR182 bonding primer to hole surface of hinge half using dampened cheesecloth. Let dry for a minimum of 15 minutes.



Sealing Compound

6

g. Apply sealing compound to hole surface and inner flange of hinge half (A1-F18AC-SRM-200, WP011 00).

h. Locate antirotation plate on inner flange of hinge half, view C.



Liquid Nitrogen

17

i. Cold-shrink install 74A160739-2005 bushing into hinge half, view C.

j. Apply sealing compound around edges of bushing and plate (A1-F18AC-SRM-200, WP011 00).

k. Use ST4M166-10-108 bushing as a drill guide by inserting it in outboard bushing, view D.

l. Ream antirotation bushing in-line with outboard bushing to 0.6250 +0.0010, -0.0000 diameter, view D.

m. Remove drill guide bushing and clean area.

n. Install aileron servocylinder (A1-F18AC-570-300, WP011 00).

10. BUSHINGS, OUTBOARD LEADING EDGE FLAP HINGES, REMOVAL AND INSTALLATION. See figure 4. Removal and installation of in-board hinge halve bushings are intermediate maintenance, outboard hinge halve bushings are organizational maintenance. For replacement parts (A1-F18AC-SRM-410, FIG 008 00).

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
Cheesecloth	CCC-C-440 Type 1, Class 1
Cleaning Compound	MIL-C-38736

a. Remove damaged bushing.

b. Measure diameters of structural holes. If measurements exceed those in views C and D, depot engineering disposition is required.



Cleaning Compound

8



To avoid contamination of cleaning compound, always pour onto clean cheesecloth. Never dip cheesecloth into cleaning compound.

c. Clean area by wiping with clean cheesecloth moistened with cleaning compound.

d. Wipe dry with clean cheesecloth.

e. Apply corrosion preventive Finish System (A1-F18AC-SRM-500, WP027 00).

f. Install bushing into hinge half while wet with corrosion preventive.

g. Ream bushing inside diameter to dimensions, views C and D.

11. CORROSION DAMAGE REPAIR FOR STRUCTURE UNDER DOORS 83 AND 84. See figure 5. Removal of corrosion from outer wing structure is depot level maintenance.

### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
Adhesive, Liquid Shim	EA9317A/B
Cheesecloth	CCC-C-440, Type 1, Class 1
Conversion Coating	MIL-C-81706

Isopropyl Alcohol  
Petrolatum, Technical  
Sealing Compound

TT-I-735, Grade 1  
VV-P-236  
MIL-S-83430, Class A-1/2

a. Remove doors 83 and 84 (A1-F18AC-LMM-010).

b. Remove form in place seal using a plastic scraper.

### NOTE

Corrosion damage exceeding maximum blend depth limits requires a depot engineering disposition.

c. In zones A, B, C, and D, corrosion damage less than maximum depth indicated on view A is removed by blending (A1-F18AC-SRM-250, WP038 00).



Isopropyl Alcohol

2

d. Clean repair area with clean cheesecloth moistened with isopropyl alcohol.



Conversion Coating

18

e. Apply conversion coating MIL-C-81706 to any exposed aluminum surface and fastener hole, (A1-F18AC-SRM-500, WP008 00).

f. Apply finish system as required, (A1-F18AC-SRM-500, WP027 00).



Adhesive, Liquid Shim

19

g. Prepare liquid shim adhesive:



(1) Combine 100 parts by weight of part A with 26 parts by weight of part B.

(2) Mix thoroughly until a uniform color appears, without streaks or lumps.

#### NOTE

Application of liquid shim adhesive must begin within 15 minutes after mixing.

h. Application of liquid shim adhesive:



Petrolatum, Technical

20

(1) Apply petrolatum to area of doors and fasteners contacting liquid shim adhesive.

(2) Apply 0.2 inch thick layer of liquid shim adhesive to blended areas, view B.

(3) Install doors 83 and 84 (A1-F18AC-LMM-010).

(4) Allow liquid shim adhesive to cure to a hard, non-tacky condition.

(5) Remove doors 83 and 84 (A1-F18AC-LMM-010).

(6) Clean up any residual liquid shim adhesive remaining from squeeze out.

i. Apply form in place seal (A1-F18AC-SRM-500, WP010 00).



Sealing Compound

6

j. Install doors 83 and 84 (A1-F18AC-LMM-010). Wet install fasteners, for sealant preparation and application (A1-F18AC-SRM-200, WP011 00).

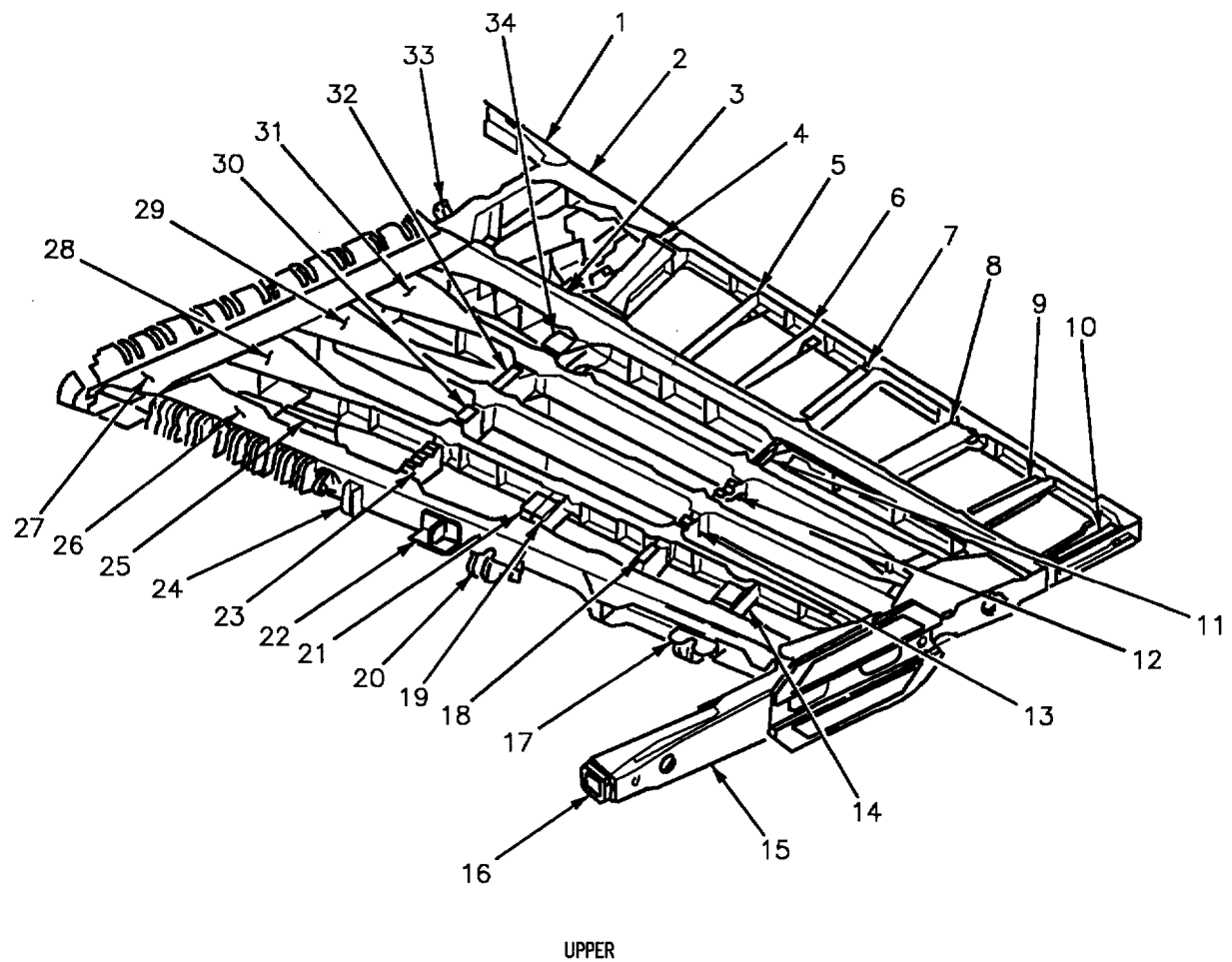


Figure 1. Material Index (Sheet 1)

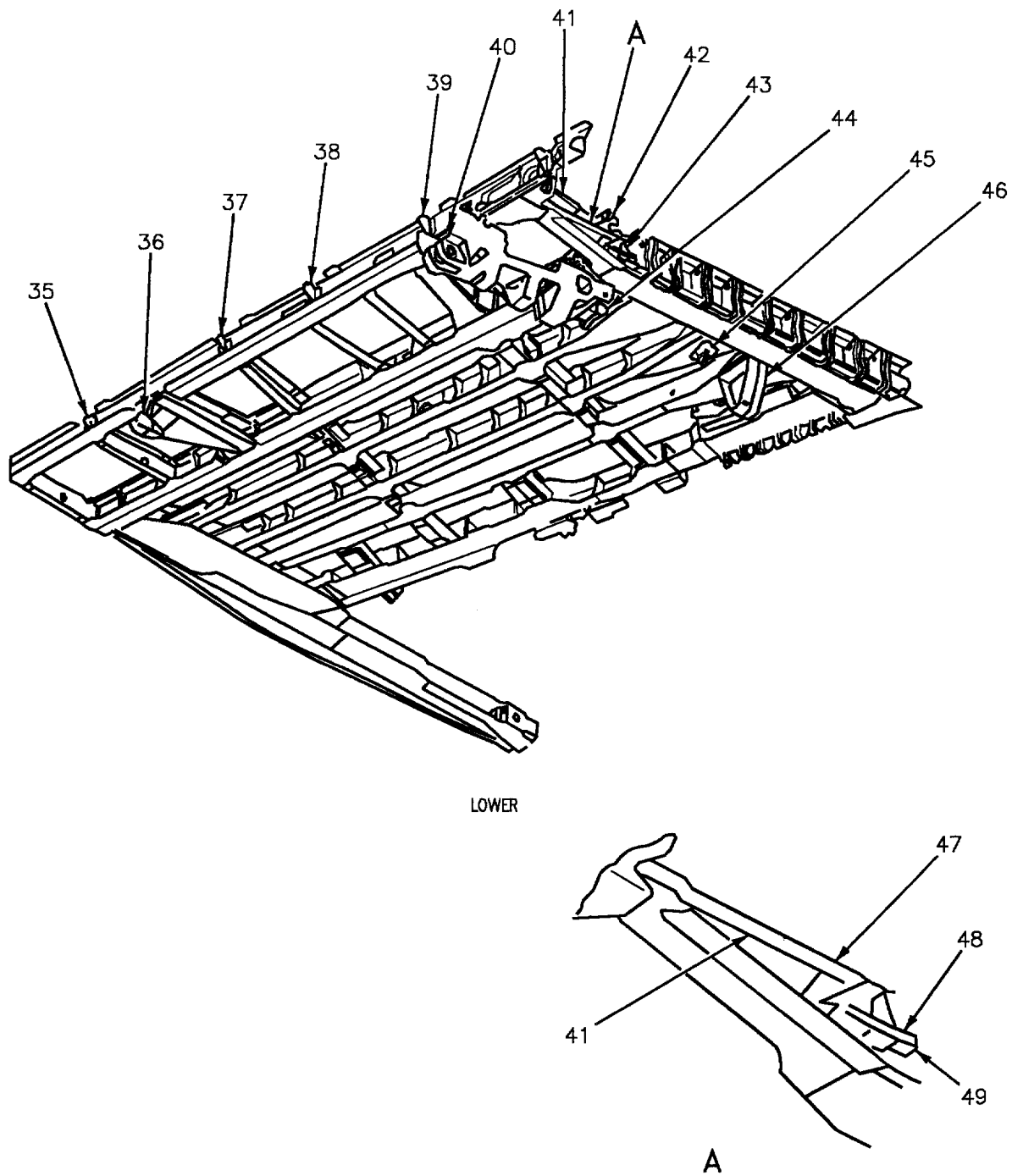


Figure 1. Material Index (Sheet 2)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Hinge 74A160811-2001, -2002	2.00 Plate	7075-T7351 Al Aly
2	<div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div>	Spar 74A150810-2001, -2002 74A150810-2003 74A150810-2004 74A150810-2005 74A150810-2006 74A150810-2007 74A150810-2008	Plate	7050-T73651 Al Aly
3	<div>8</div> <div>9</div> <div>6</div> <div>7</div>	Spar 74A150609-2013 74A150609-2014 74A160609-2015 74A150609-2016	Plate	7050-T73651 Al Aly
4	<div>10</div> <div>11</div>	Rib 74A150617-2009, -2010 74A150617-2011, -2012	Machining	7075-T73651 Al Aly
5		Rib 74A150754-2003, -2004	0.063 Sheet	7075-T6 Alclad
6		Rib 74A150753-2003, -2004	0.063 Sheet	7075-T6 Alclad
7		Rib 74A150819-2001, -2002	0.063 Sheet	7075-T6 Alclad
8		Rib 74A150814-2001, -2002	2.50 Plate	7050-T73651 Al Aly
9	<div>8</div> <div>9</div> <div>6</div> <div>7</div>	Rib 74A150813-2001 74A150813-2002 74A150813-2003 74A150813-2004	0.063 Sheet	7075-T6 Alclad
10		Rib 74A150812-2001, -2002	0.063 Sheet	7075-T6 Alclad
11		Rib 74A150666-2001, -2002	2.75 Plate	7075-T7351 Al Aly
12		Rib 74A150665-2001, -2002	2.50 Plate	7075-T7351 Al Aly
13		Rib 74A150620-2001, -2002	2.50 Plate	7075-T7351 Al Aly

Figure 1. Material Index (Sheet 3)







Idx No.	Eft	Nomenclature and Part No.	Description	Material
14		Rib 74A150667-2005, -2006	2.50 Plate	7070-T7351 Al Aly
15		Rib 74A150625-2011, -2012	Machining	7050-T73652 Al Aly
16		Closure 74A150627-2003, -2004	Machining	7050-T73652 Al Aly
17		Hinge 74A150679-2003, -2004	2.00 Plate	7050-T73651 Al Aly
18		Rib 74A150619-2001, -2002	2.50 Plate	7075-T7351 Al Aly
19		Rib 74A150756-2001, -2002	1.50 Sheet	7050-T73651 Al Aly
20		Hinge 74A150678-2003, -2004	Machining	7050-T73652 Al Aly
21		Rib 74A150614-2001, -2002	1.50 Sheet	7050-T73651 Al Aly
22	 	Support 74A150783-2003, -2004 74A150783-2005, -2006	2.25 Plate	7075-T7351 Al Aly
23		Rib 74A150611-2001, -2002	2.50 Plate	7075-T7351 Al Aly
24	 	Support 74A150767-2005, -2006 74A150767-2007, -2008	2.25 Plate	7075-T7351 Al Aly
25		Rib 74A150618-2005, -2006	Machining	7075-T73651 Al Aly
26	 	Spar 74A150602-2011, -2012 74A150602-2013, -2014	Machining	7175-T73652 Al Aly
27		Rib 74A150613-2007, -2008	Machining	6Al-4V Beta Anl
28		Spar 74A150604-2011, -2012	Plate	7050-T73651 Al Aly
29		Spar 74A150605-2011, -2012	Plate	7050-T73651 Al Aly
30		Rib 74A150612-2003, -2004	2.75 Plate	7075-T7351 Al Aly

Figure 1. Material Index (Sheet 4)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
31		Spar 74A150606-2007,-2008	Plate	7050-T73651 Al Aly
32		Rib 74A150615-2001, -2002	3.00 Plate	7050-T73651 Al Aly
33		Support 74A150712-2001, -2002	2.50 Plate	7075-T7351 Al Aly
34		Rib 74A150616-2003, -2004	Machining	7075-T73651 Al Aly
35		Hinge 74A150833-2001, -2002	1MA160D05 Extr	7075-T73511 Al Aly
36	<div>18</div> <div>19</div> <div>20</div> <div>21</div>	Hinge 74A150830-2001 74A150830-2002 74A150830-2003 74A150830-2004	Machining	7050-T73652 Al Aly
37		Hinge 74A150829-2001, -2002	1MA160D05 Extr	7075-T73511 Al Aly
38		Hinge 74A150831-2001, -2002	1MA160D05 Extr	7075-T73511 Al Aly
39		Hinge 74A150828-2001, -2002	1MA160D05 Extr	7075-T73511 Al Aly
40	<div>22</div> <div>23</div>	Hinge 74A150821-2001, -2002 74A150821-2003, -2004	Machining	7075-T7354 Al Aly
41		Stiffener 74A150770-2005, -2006	0.032 Sheet	7075-T6 Alclad
42		Support 74A150712-2001, -2002	2.50 Plate	7075-T7351 Al Aly
43		Support 74A150769-2005, -2006	0.050 Sheet	7075-T6 Alclad
44		Support 74A150748-2003, -2004	1.38 Plate	7075-T7351 Al Aly
45		Support 74A150747-2001, -2002	1MA160D05 Extr	7075-T73511 Al Aly
46		Support 74A150745-2005, -2006	3.00 Plate	7075-T7351 Al Aly
47		Seal 74A150002-2011	11M991-1 Extr	24

Figure 1. Material Index (Sheet 5)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
48		Seal 74A150002-2009	11M991-1 Extr	24
49		Stiffener 74A150796-2001, -2002	0.040 Sheet	7075-T6 Alclad
<p style="text-align: center;"><b>LEGEND</b></p> <p>1 161353 THRU 161519.</p> <p>2 161520 THRU 161963.</p> <p>3 161520 THRU 161965.</p> <p>4 161964 THRU 163111.</p> <p>5 161966 THRU 163115.</p> <p>6 163112 AND UP.</p> <p>7 163116 AND UP.</p> <p>8 161353 THRU 163111.</p> <p>9 161353 THRU 163115.</p> <p>10 161353 THRU 161528.</p> <p>11 161702 AND UP.</p> <p>12 161361 THRU 162852.</p> <p>13 161353 THRU 162901.</p> <p>14 161353 THRU 161359.</p> <p>15 161360 AND UP.</p> <p>16 161353 THRU 162893.</p> <p>17 162894 AND UP.</p> <p>18 161353 THRU 162901.</p> <p>19 161353 THRU 162884, 162895.</p> <p>20 162902 AND UP.</p> <p>21 162885 THRU 162894, 162896 AND UP.</p> <p>22 161353 THRU 161748.</p> <p>23 161749 AND UP.</p> <p>24 Silicone rubber sponge with Dacron mesh fabric cover; bonded to structure with Silastic 732RTV, adhesive.</p> <p>25 161353 THRU 162885, 162895.</p> <p>26 162902 AND UP.</p> <p>27 162886 THRU 162894, 162896 AND UP.</p>				

Figure 1. Material Index (Sheet 6)

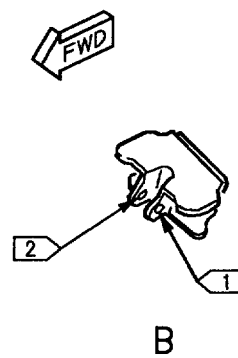
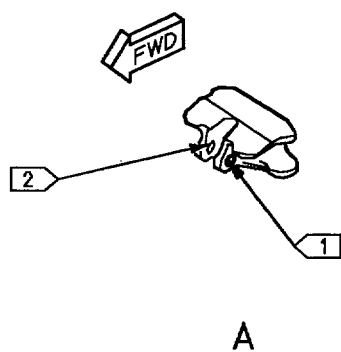
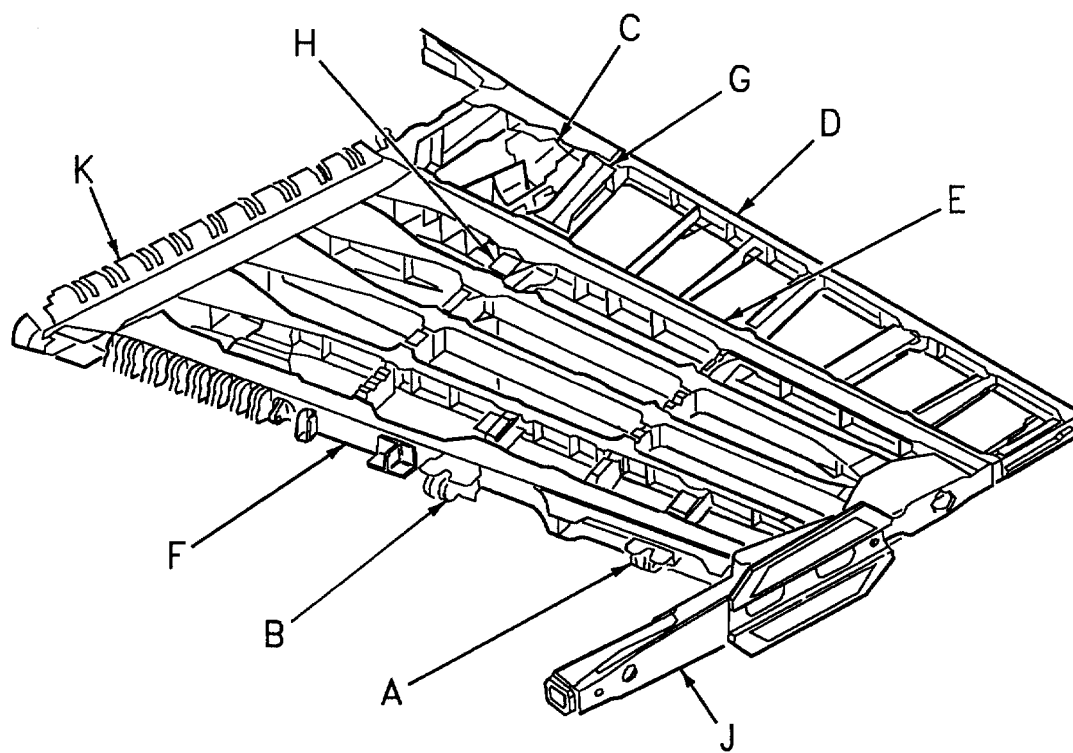


Figure 2. Repair Zones (Sheet 1)



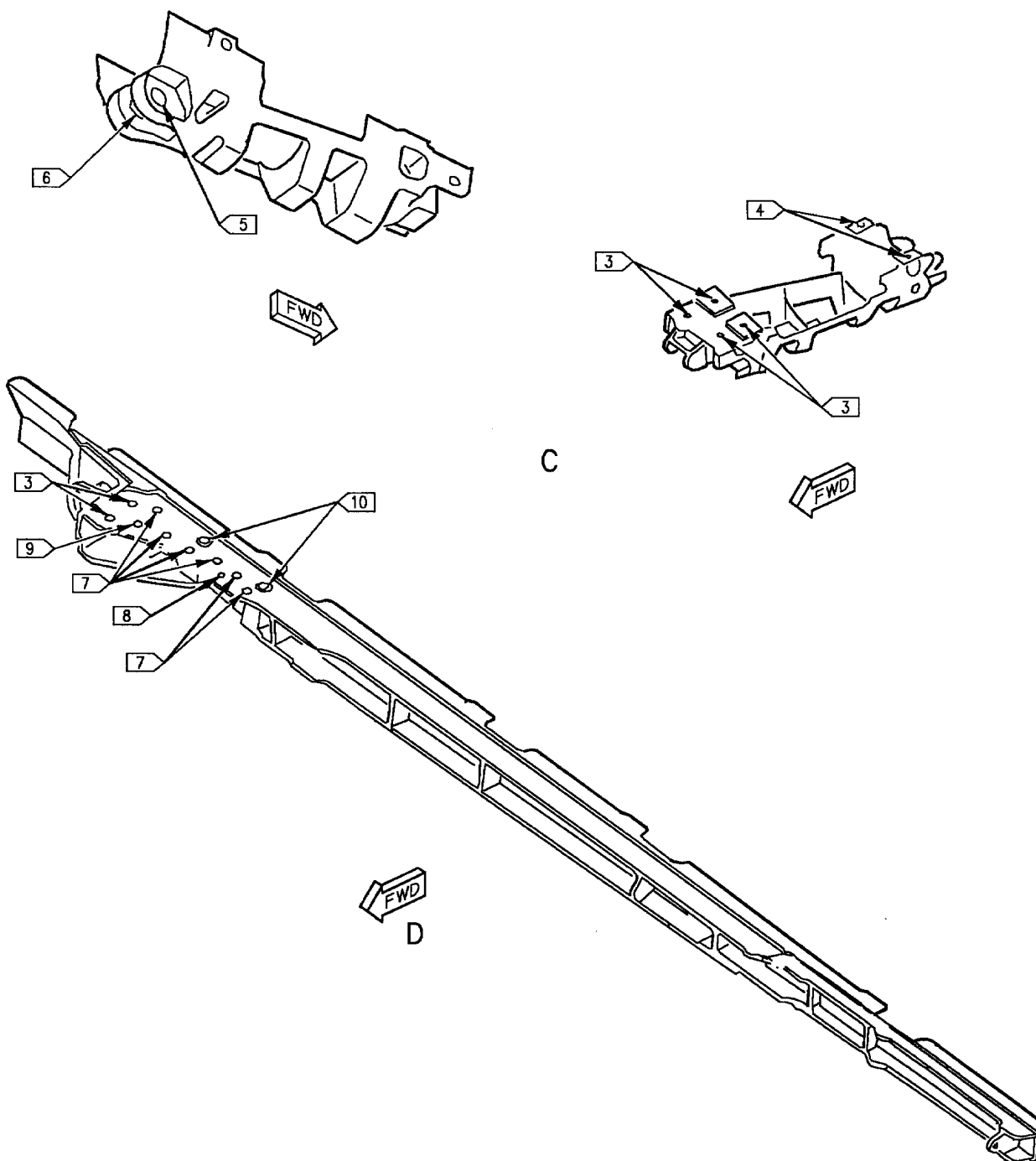


Figure 2. Repair Zones (Sheet 2)

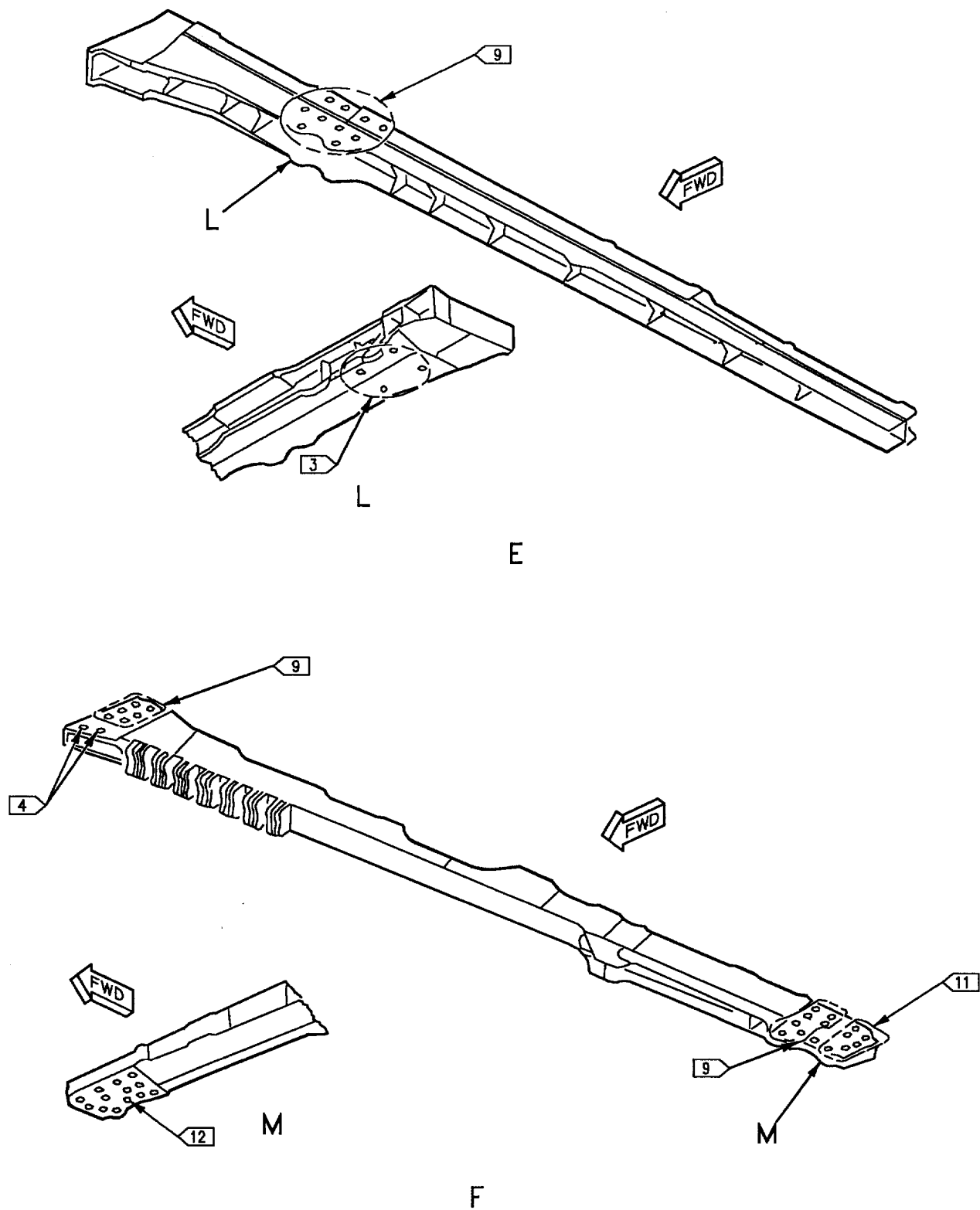


Figure 2. Repair Zones (Sheet 3)

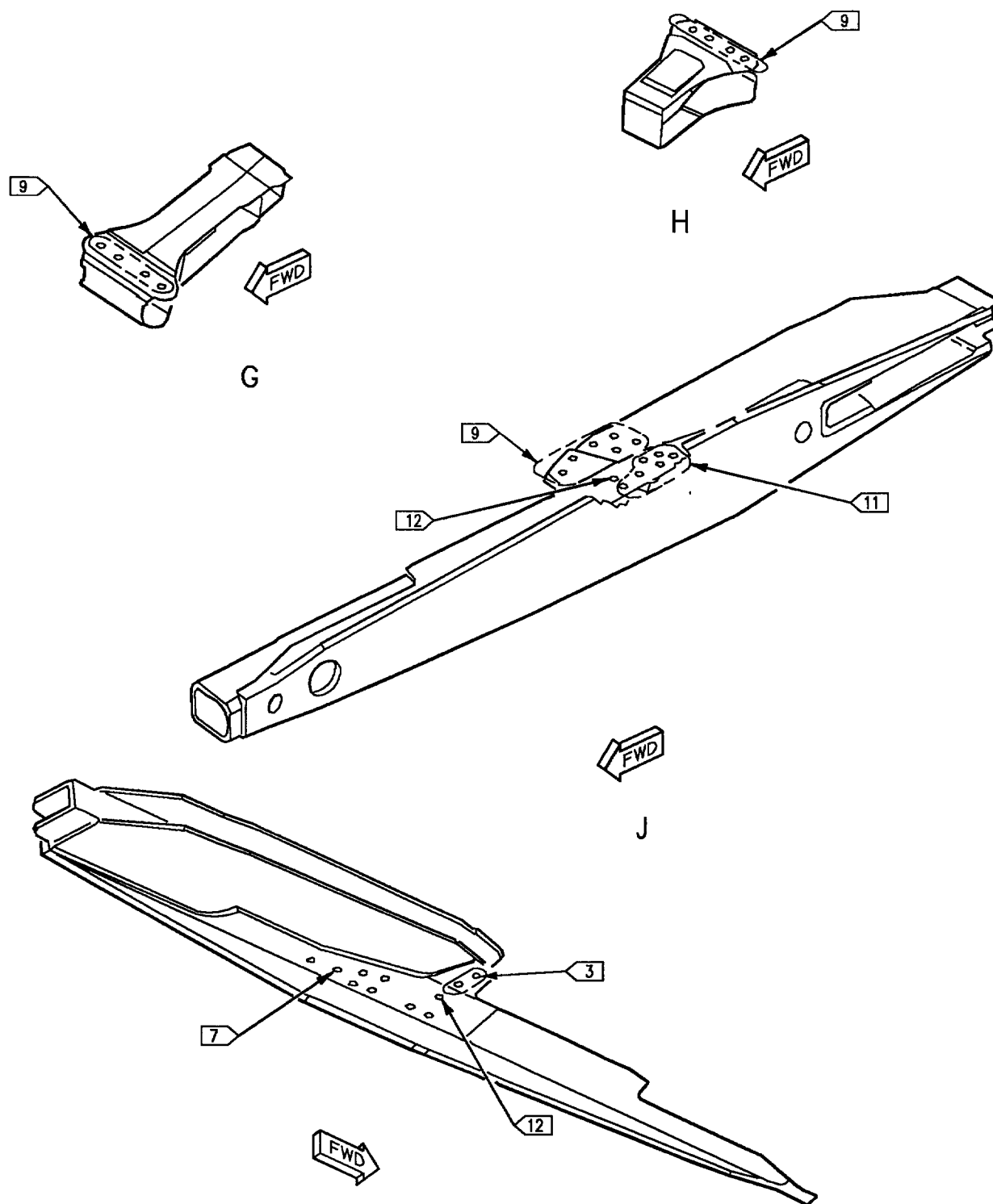
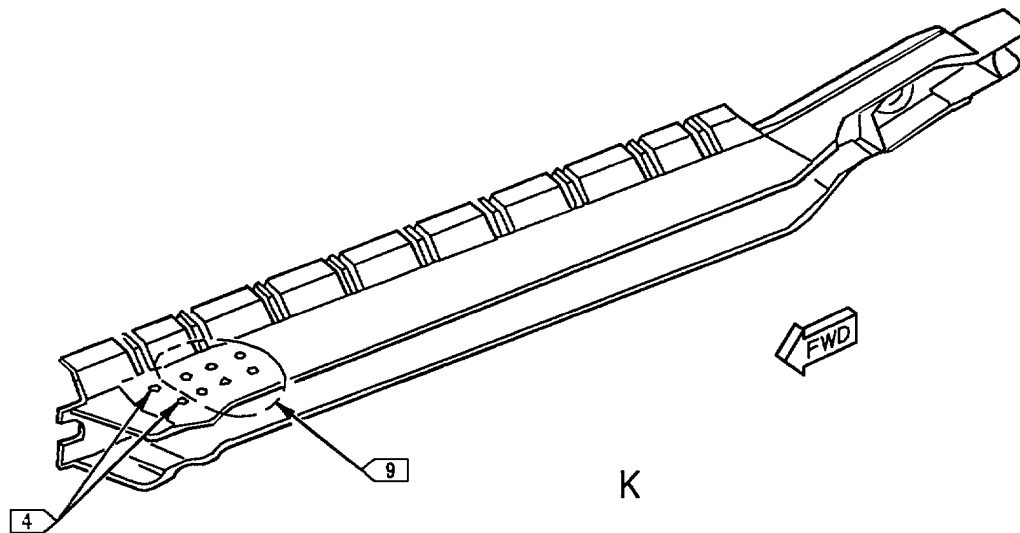


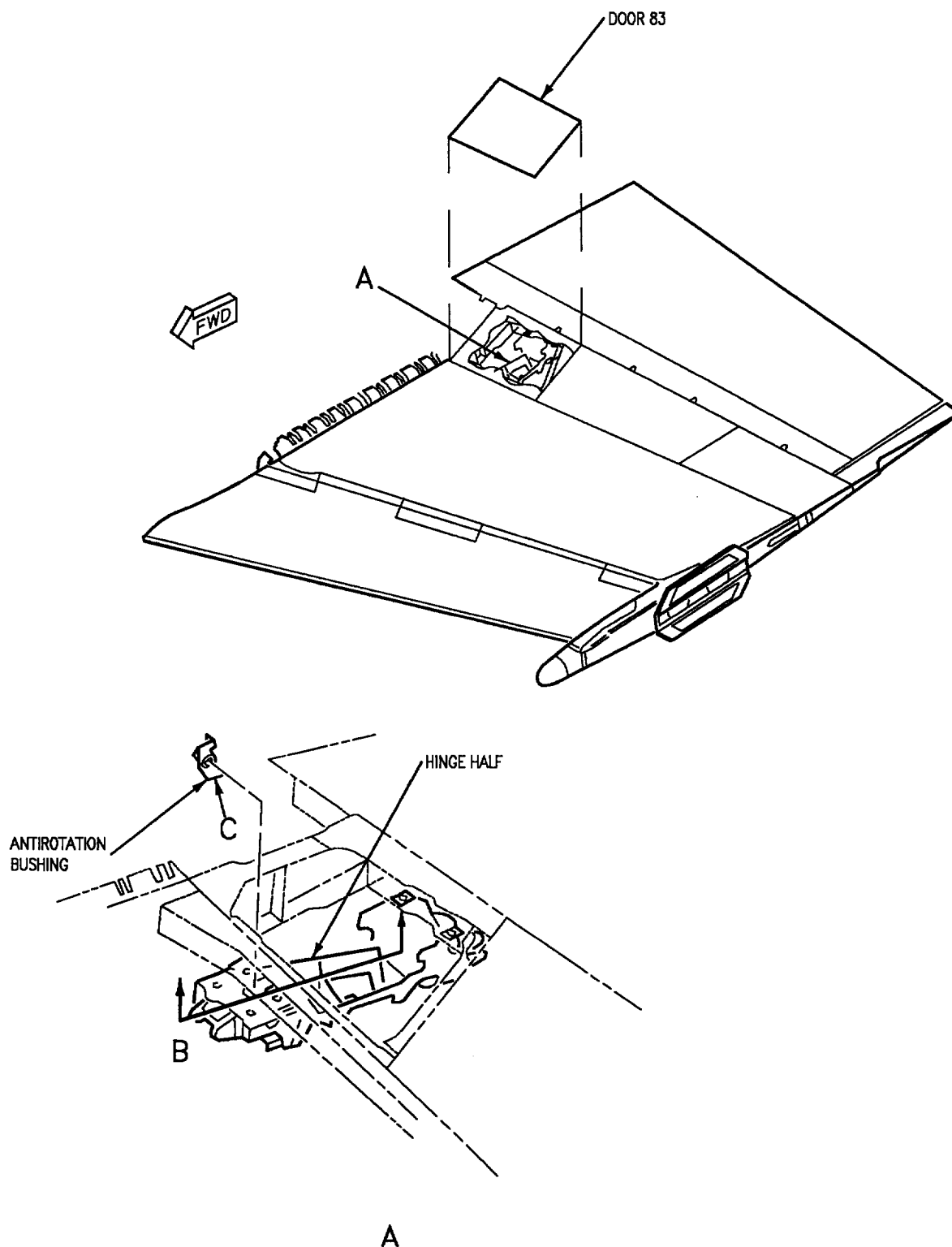
Figure 2. Repair Zones (Sheet 4)



## LEGEND

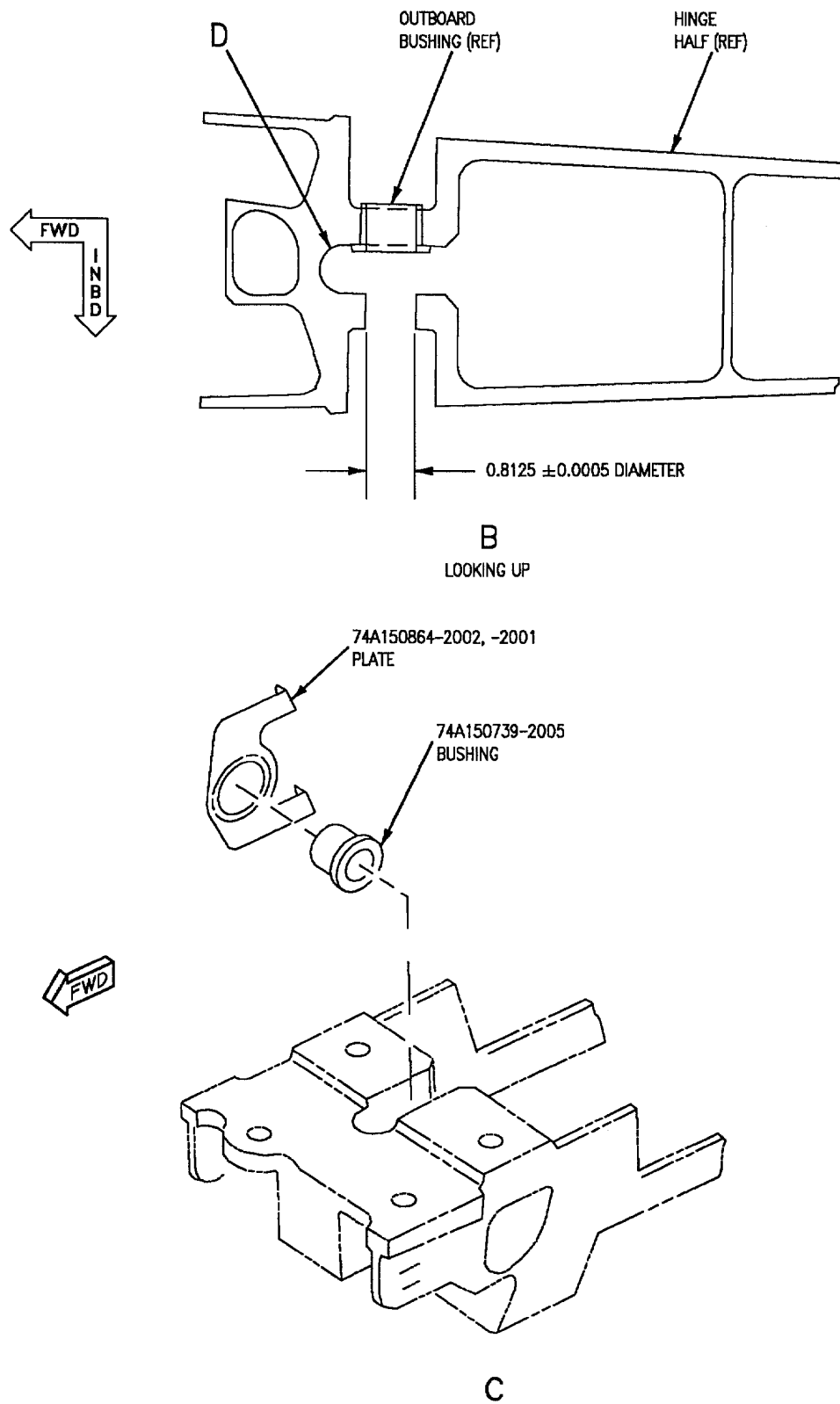
INDEX	TYPE OF COLD WORKED HOLES	HOLE DIAMETER
1		$0.5000+0.0005-0.0005$
2		$0.6250+0.0005-0.0005$
3		$0.3120+0.0020-0.0000$
4		$0.3750+0.0070-0.0000$
5		$0.8125+0.0005-0.0005$
6		$1.0000+0.0010-0.0005$
7		$0.2500+0.0030-0.0000$
8		$0.1910+0.0060-0.0000$
9		$0.3125+0.0030-0.0000$
10		$0.3745+0.0020-0.0000$
11		$0.2485+0.0025-0.0000$
12		$0.2600+0.0030-0.0000$

Figure 2. Repair Zones (Sheet 5)



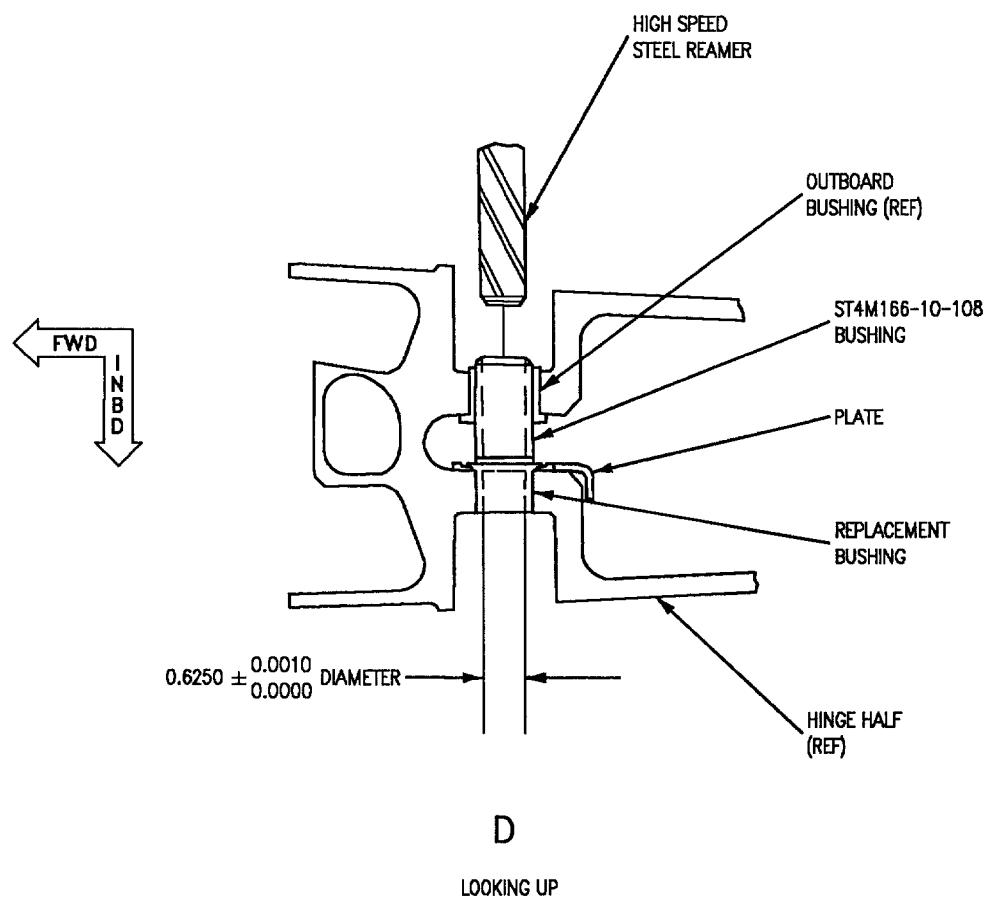
01200301

Figure 3. Aileron Servocylinder Antirotation Bushing Repair (Sheet 1)



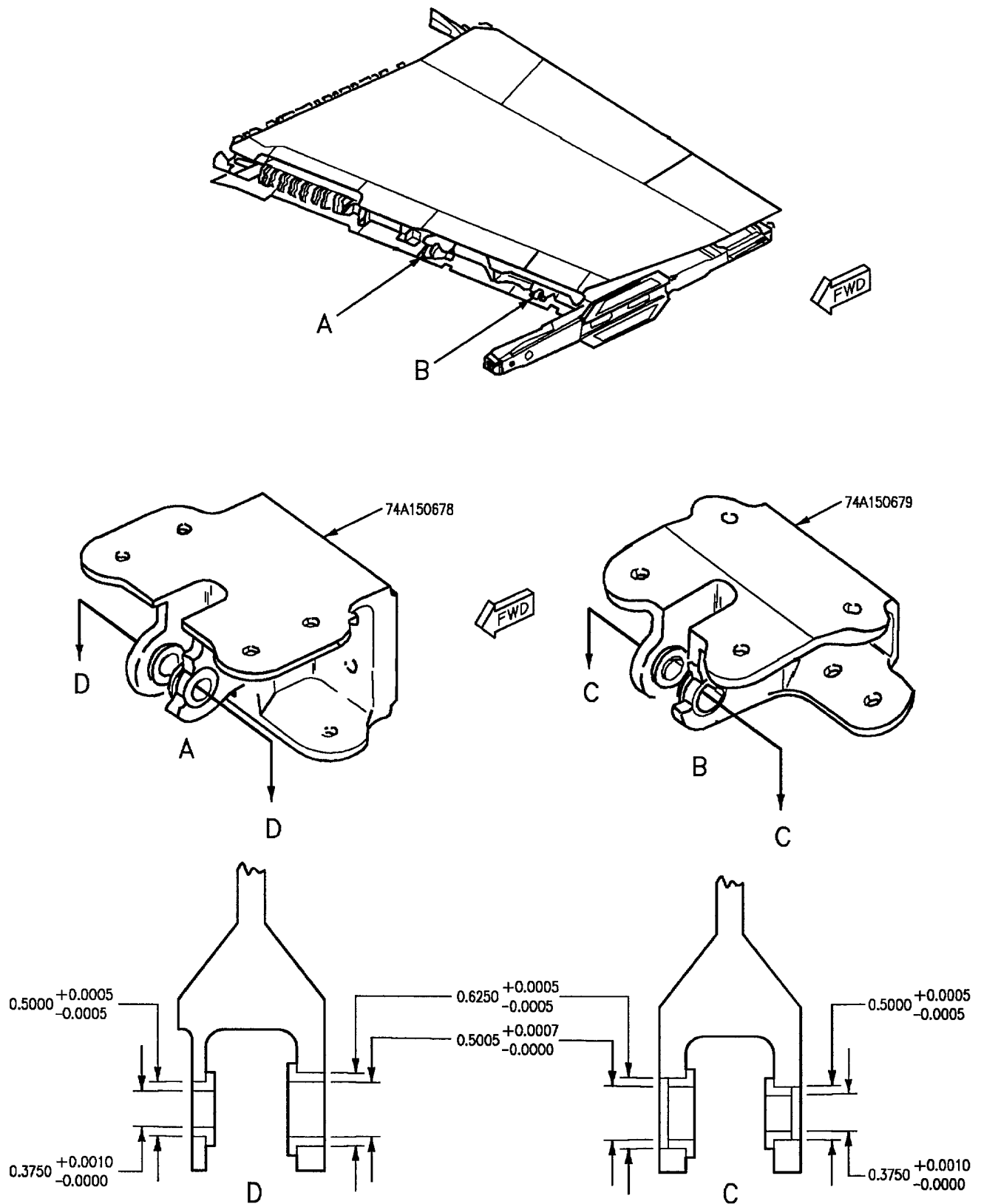
01200302

Figure 3. Aileron Servocylinder Antirotation Bushing Repair (Sheet 2)



01200303

Figure 3. Aileron Servocylinder Antirotation Bushing Repair (Sheet 3)



012004

Figure 4. Bushings, Outboard Leading Edge Flap Hinges, Removal and Installation



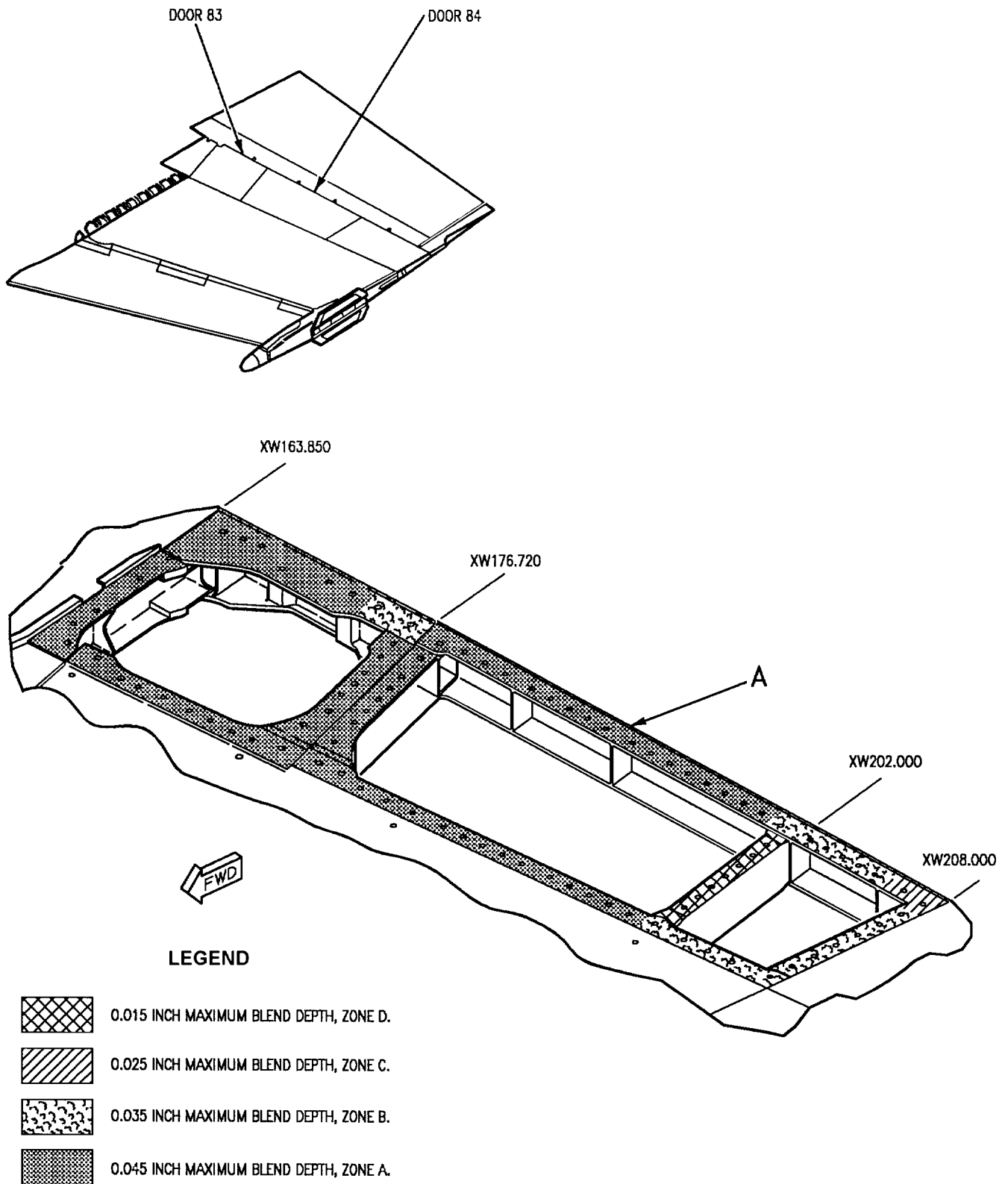


Figure 5. Corrosion Damage Repair (Sheet 1)

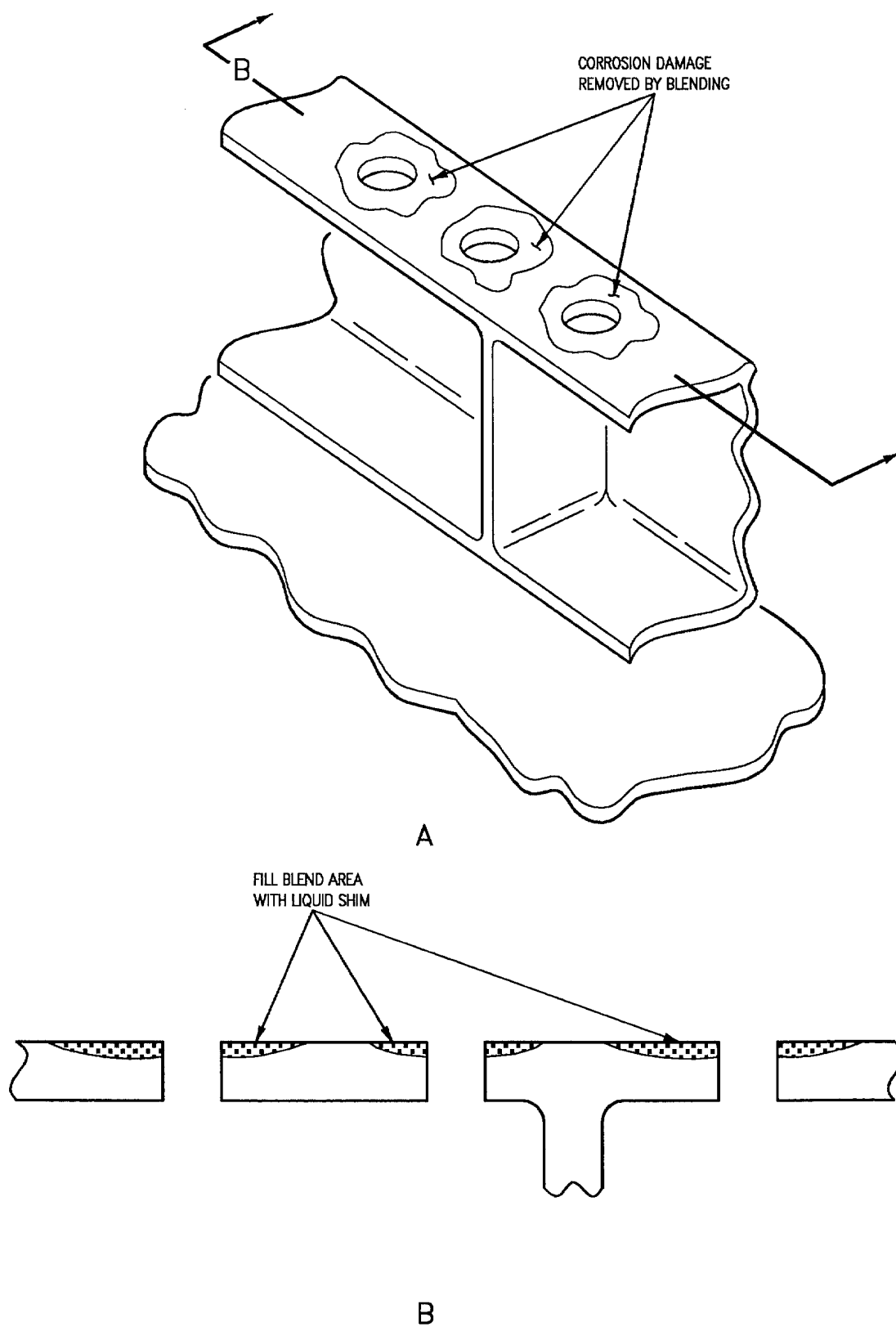


Figure 5. Corrosion Damage Repair (Sheet 2)

## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## MAINTENANCE FIXTURE RE174150002-1, -2

## OUTER WING

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Outer Wing Leading Edge Flap Hinge Half Locating Fixture, RE774150002- 1, -2 .....	WP012 03
Outer Wing Removal and Installation .....	WP020 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Cold Working Fastener Holes .....	WP004 10
Accessory Kits and Spray Mist Coolant Tank .....	WP004 16
Drilling Machines .....	WP004 17
Cold Working Fastener Hole Tool Set, Part No. RE174000002-1 .....	WP004 20
System Maintenance with IPB Integrated Flight Controls .....	A1-F18AC-570-300
Aileron (84MPU525 or 84MPV526) or Aileron Shroud (84MPU527 or 84MPV528) Electronic Flight Control System .....	WP010 00
Outboard Flap (84MPU537 or 84MPV538) .....	WP032 00

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Installation of Outer Wing into Maintenance Fixture .....	11
Installation of Outer Wing Maintenance Fixture into Maintenance Stands .....	7
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## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The outer wing maintenance fixture (fixture) is used to evaluate and repair the outer wing (wing). The fixture contains locators for various details on the wing and supports to hold the wing in position during repair actions. The supports and locators also serve as gaging surfaces for damage inspection. The maintenance stands (stands) support and position fixture. The fixture requires accurate leveling and verification, with an alignment kit, before use and should be gage recycled with outer wing alignment kit to verify fixture remains accurate.

3. INSTALLATION OF MAINTENANCE STANDS FOR USE WITH OUTER WING MAINTENANCE FIXTURE. See figure 1.

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Maintenance Stand	RE474000004

## Materials Required

None

a. Hoist stands with an overhead hoist attached to hoist fitting (detail 128).

b. Position stands as below:

(1) Center stud bolts (detail 121) in slot in plate (detail 13C), view B.

(2) Distance between indentations in heads of stud bolts (detail 121) is 82 inches plus or minus 1 inch.

(3) Align centerline of spindles (detail 13) in line within 1.5 degrees of each other.

c. Anchor each stand to floor with six 3/8 inch bolts.

d. Disengage L-pin (detail 14) from spindles (detail 13). Rotate spindles (detail 13) until plate (detail 13C) is parallel to floor with head of stud bolt (detail 121) up.

e. Reengage L-pin (detail 14) with spindles (detail 13).

**WARNING**

Inspect L-pins (detail 14) on maintenance stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

f. Support the adjustable support (detail 12) with an overhead hoist attached to hoist fitting (detail 128), remove cotter pin (detail 110), nut (detail 111), washer (detail 112) from T-pin (detail 108), view C.

g. Remove T-pin (detail 108) from adjustable support (detail 12) and lower support (detail 11), view C.

h. Raise adjustable support (detail 12) until the upper surface of the plate (detail 13C) is 44.0 inches above floor. Re-install T-pin (detail 108) into lower

support (detail 11) and adjustable support (detail 12), view C.

i. Install washer (detail 112), two nuts (detail 111) on T-pin (detail 108), tighten nuts (detail 111) and install cotter pin (detail 110), view C.

j. Loosen jamnut (detail 115) and nut (detail 116) on eyebolt (detail 119), rotate eyebolt (detail 119) clear of plate (detail 13C), view A.

k. Swing upper plate (detail 101) clear of plate (detail 13C), view D.

l. Loosen jamnut (detail 115) and adjust nut (detail 114) to obtain a 0.40 inch preload dimension on disc springs (detail 117) two places each stand, view D.

m. Tighten jamnut (detail 115) after preload dimension is reached, two places each stand, view D.

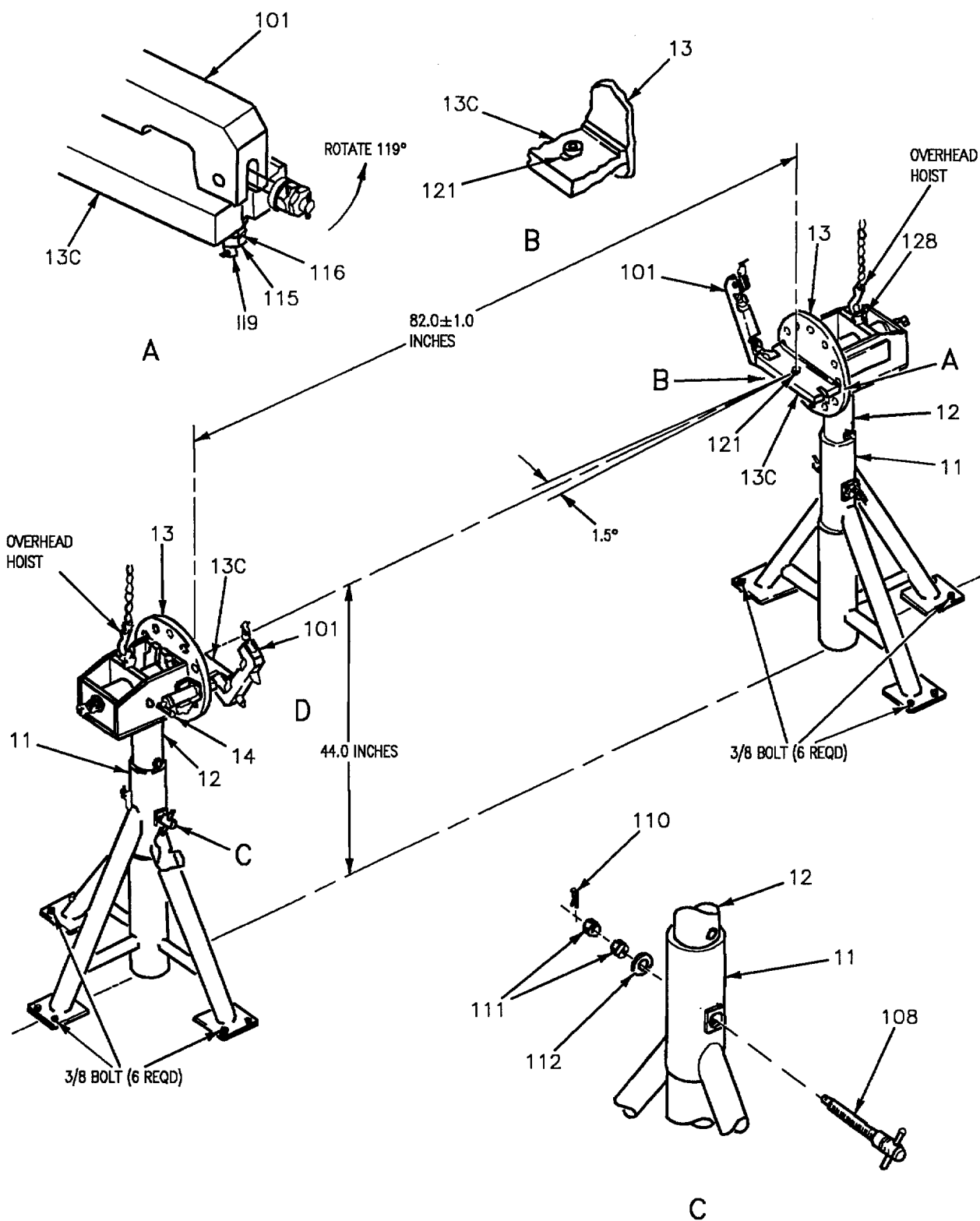


Figure 1. Installation of Maintenance Stands (Sheet 1)

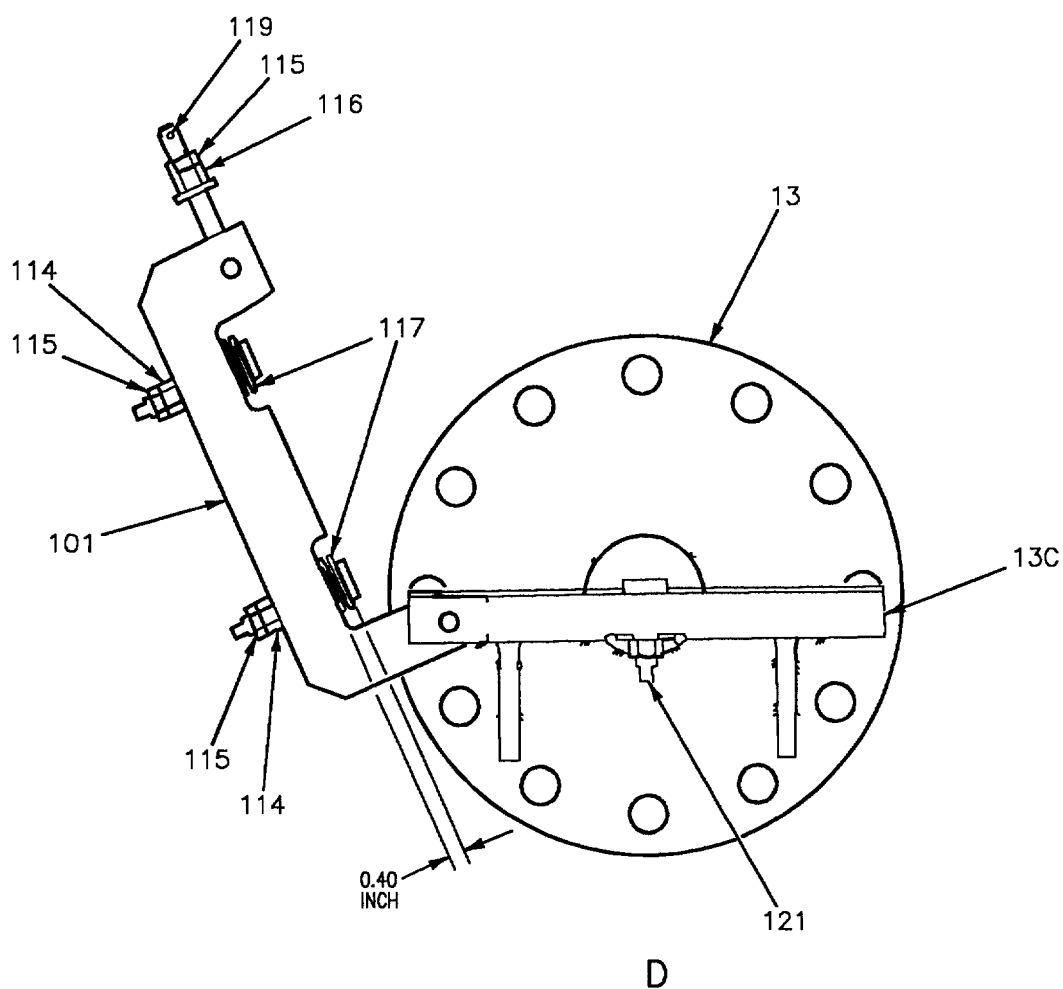


Figure 1. Installation of Maintenance Stands (Sheet 2)

Detail No.	Name	Function
11	Lower support	Supports maintenance fixture.
12	Adjustable support	Supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
108	T-Pin	Locates details 11 and 12.
110	Cotter pin	Secures detail 108 in place.
111	Nut	Secures detail 108 in place.
112	Washer	Secures detail 108 in place.
114	Nut	Adjusts preload dimension for detail 117.
115	Jamnut	Secures details 114 and 116 in place.
116	Nut	Secures detail 119 in place.
117	Disc spring	Used for preload dimension.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.
128	Hoist fitting	Support maintenance stands while hoisting.

Figure 1. Installation of Maintenance Stands (Sheet 3)



4. INSTALLATION OF OUTER WING MAINTENANCE FIXTURE INTO MAINTENANCE STANDS. See figure 2.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Alignment Set	AK174150002-1

Materials Required

None

a. Hoist maintenance fixture (fixture) in the horizontal position with an overhead hoist attached to four hoist fittings (detail 155) on fixture. See figure.

**WARNING**

Inspect L-pins (detail 14) on maintenance stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

b. Lower fixture aligning counter bores in end plates (detail 11N) on fixture with stud bolt (detail 121) on stands, view A.

c. Swing upper plate (detail 101) on stand over end plate (detail 11N) on fixture, view A.

d. Swing eyebolt (detail 119) down into slot in plate (detail 13C), tighten nut (detail 116) clamping fixture to stand and tighten jamnut (detail 115) to lock nut (detail 116) in place, view A.

e. Disconnect overhead hoist from four hoist fittings (detail 155) on fixture.

f. Rotate fixture, check to make sure it clears floor and stands.

g. Remove four hoist fittings (detail 155).

h. Rig and align the fixture by installing the maintenance fixture alignment set.

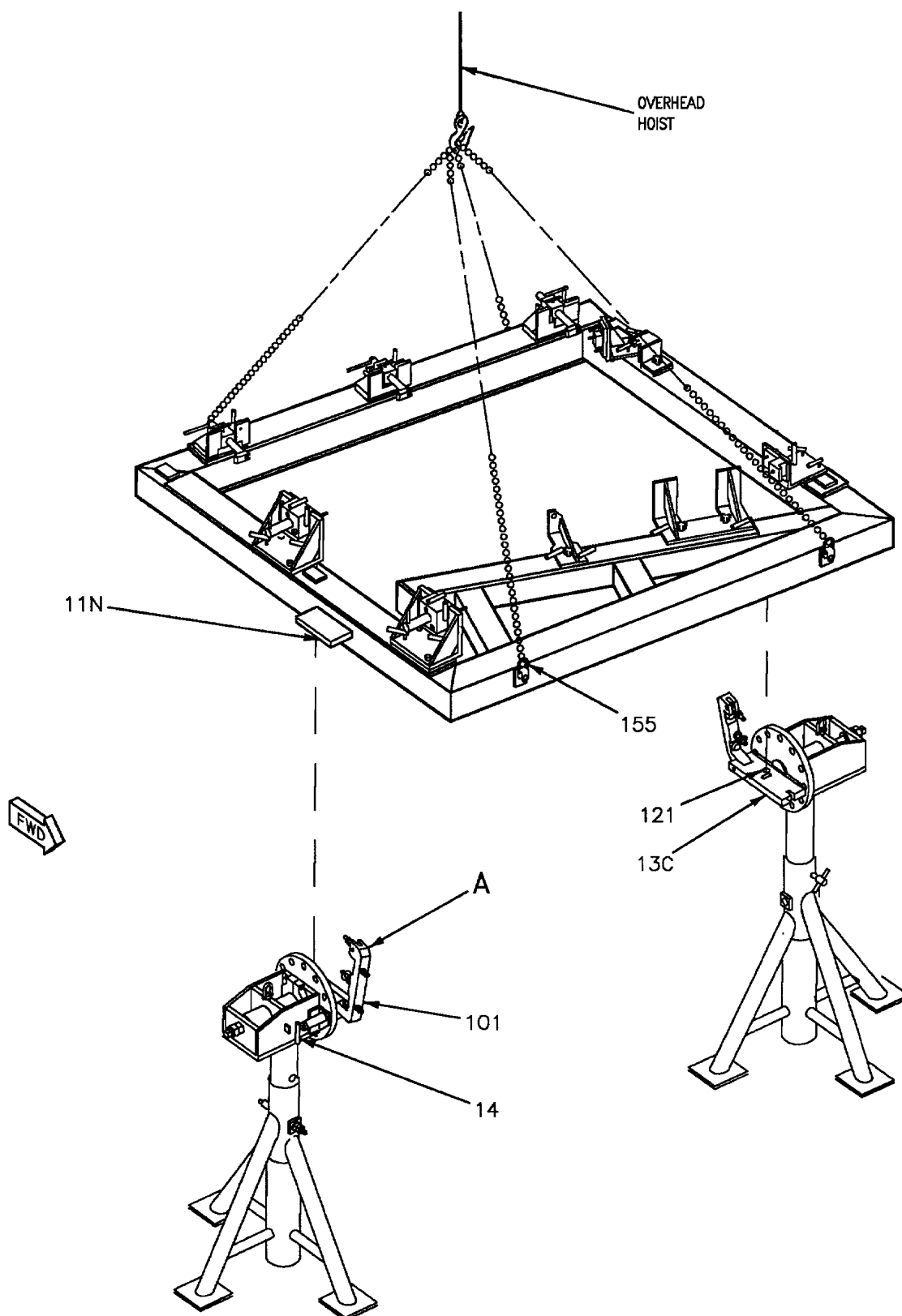


Figure 2. Installation of Maintenance Fixture (Sheet 1)

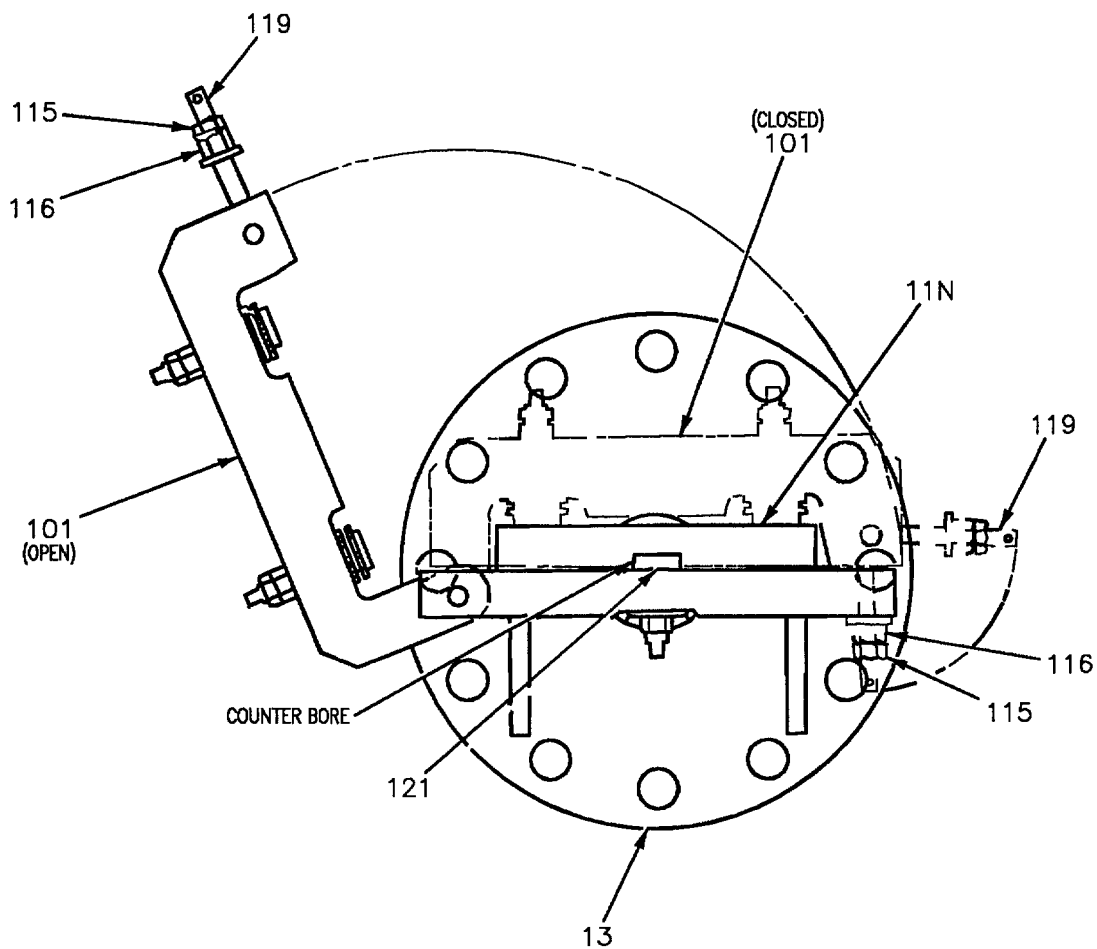


Figure 2. Installation of Maintenance Fixture (Sheet 2)

Detail No.	Name	Function
11N	End plate	Aligns and supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
155	Hoist fitting	Supports maintenance fixture while hoisting.
115	Jamnut	Secures detail 116 in place.
116	Nut	Secures detail 119 in place.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.

Figure 2. Installation of Maintenance Fixture (Sheet 3)

5. INSTALLATION OF OUTER WING INTO MAINTENANCE FIXTURE. See figure 3. Load the outer wing into the outer wing maintenance fixture in the inverted position.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Outer Wing Sling	74D110030-1001

### Materials Required

None

### WARNING

Make sure L-pins (detail 14) on maintenance stands are fully engaged with spindle (detail 13). A disengaged spindle may rotate and could cause injury or damage to outer wing fixture.

a. Rotate fixture to horizontal position (parallel to floor) with construction balls on lower side of fixture and engage L-pins (detail 14) into spindle (detail 13) on maintenance stands, see sheet 1.

b. Remove all removable locators from frame (detail 11).

c. Loosen socket head cap screws (detail 400) and remove L-pins (detail 403) from locator (detail 459) two places, weld assembly (detail 60) two places, and weld assembly (detail 74), view D, E, and F.

d. Remove aileron (A1-F18AC-570-300, WP010 00).

e. Remove outboard leading edge flap (A1-F18AC-570-300, WP032 00).

f. Attach 74D110030-1001 hoist and remove outer wing from aircraft (WP020 00); or if outer wing is removed from aircraft, attach hoist to missile rib using hoist bolts, view G.

g. Using overhead hoist, position wing over fixture. Slowly lower wing into place on fixture. Use padding as required between wing fold area and fixture while locating wing in fixture. See view A.

h. Install locator (detail 52) using L-pins (detail 206) and hand knobs (detail 130), view C.

i. Install locator (detail 53) using L-pins (detail 206) and hand-knob (detail 373), view C.

### NOTE

Verify that socket head cap screws (detail 400) are loosened and L-pins (detail 403) are removed from locators (details 61, 62, 63, 65, 66, and 459).

j. Install locator (detail 65) using L-pins (detail 403) and hand knob (detail 489), view B.

k. Install locator (detail 66) using L-pins (detail 403) and hand knob (detail 489), view B.

l. Install locator (detail 57) using L-pins (detail 206) and two socket head cap screws (detail 532), view D.

m. Install locator (detail 58) using L-pins (detail 206) and two socket head cap screws (detail 532), view D.

n. Install locator (detail 61) using L-pins (detail 163) and hex head bolts (detail 564), view E.

o. Install locator (detail 62) using L-pins (detail 163) and hex head bolts (detail 564), view F.

p. Install locator (detail 63) using L-pins (detail 163) and hex head bolts (detail 564), view F.

q. Align wing in fixture and insert pin (detail 377) through leading edge flap transmission lugs and locator (detail 52), view C.

r. Align wing in fixture and insert T-pin (detail 375) through locator (detail 53) and into 74A150603 spar, view C.

s. Align 74A150613 wing fold rib and locator (detail 65), and insert T-pin (detail 190) through locator (detail 65), and into wing fold rib, view B.

t. Align 74A150613 wing fold rib and locator (detail 66), and insert T-pin (detail 189) through locator (detail 66) and into wing fold rib, view B.

u. With tip (detail 220) installed on pin (detail 191) align missile rib and locator (detail 58) and insert locator (detail 459) into missile rib. Secure with T-pin (detail 522), view D.

v. With tip (detail 219) installed on pin (detail 191) align missile rib and locator (detail 57) and insert locator (detail 459) into missile rib. Secure with T-pin (detail 522), view D.

w. Align 74A150810 aft spar to locator (detail 63) and insert pin (detail 396) into aft spar. Insert T-pin (detail 118) into locator (detail 63), view F.

x. Align 74A150810 aft spar to locator (detail 62) and insert pin (detail 396) into aft spar. Insert T-pin (detail 118) into locator (detail 62), view F.

y. Align 74A150810 aft spar to locator (detail 61) and insert pin (detail 456) into aft spar. Insert T-pin (detail 118) into locator (detail 61), view E.

## NOTE

L-pins pinning freely, indicates nominal condition of wing.

z. Secure floating details by tightening socket head cap screws (detail 400) starting at wing fold rib, then missile rib, and then aft spar, views C, D, E, and F.

aa. Install T-pins (detail 118) at floating details, views E and F.

ab. Install L-pins (detail 522) at floating details, view D.

ac. Thoroughly clamp wing to fixture, using spacers as required to prevent clamp distortion of wing structure.

ad. Remove 74D110030-1001 sling from outer wing.

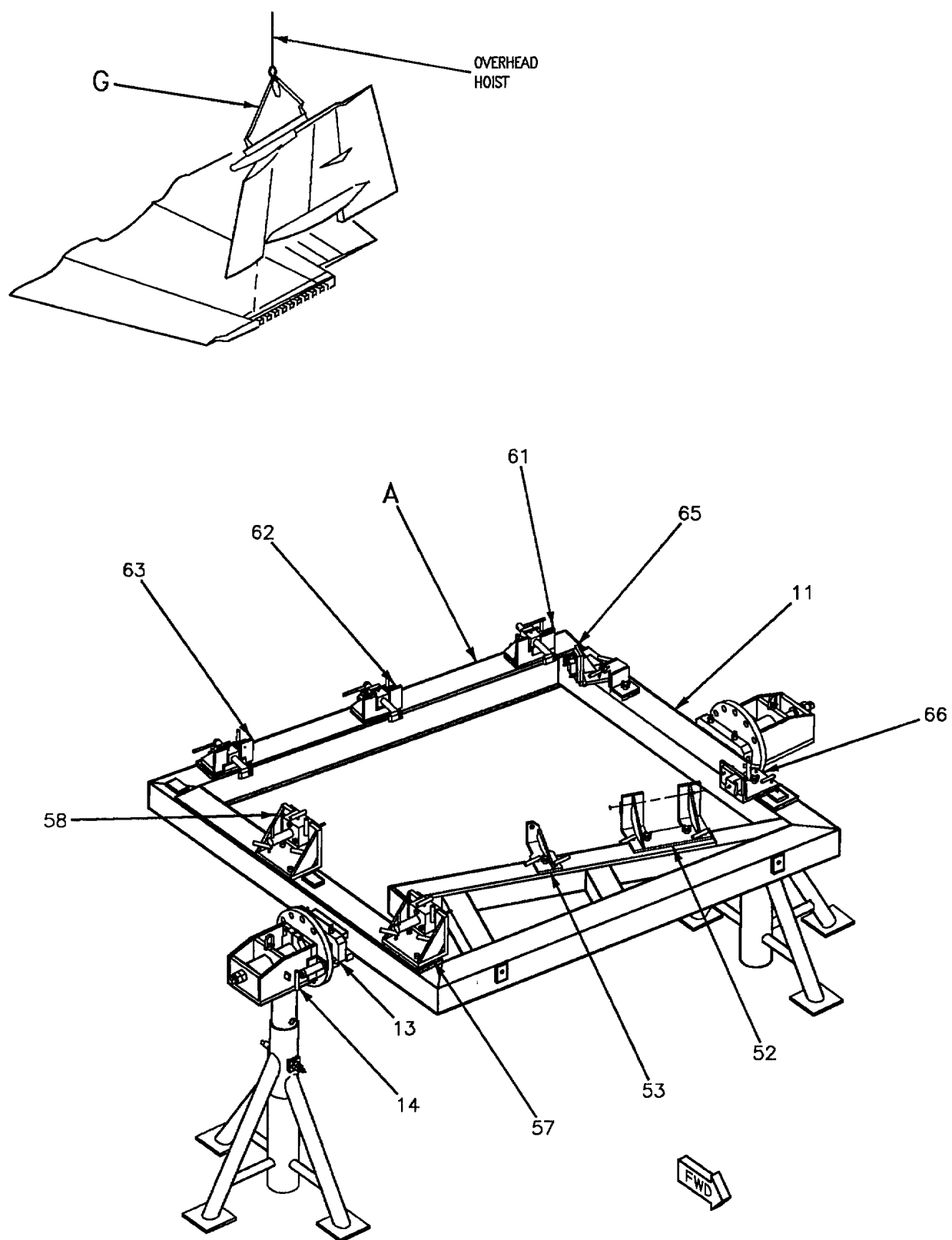


Figure 3. Installation of Outer Wing into Fixture (Sheet 1)

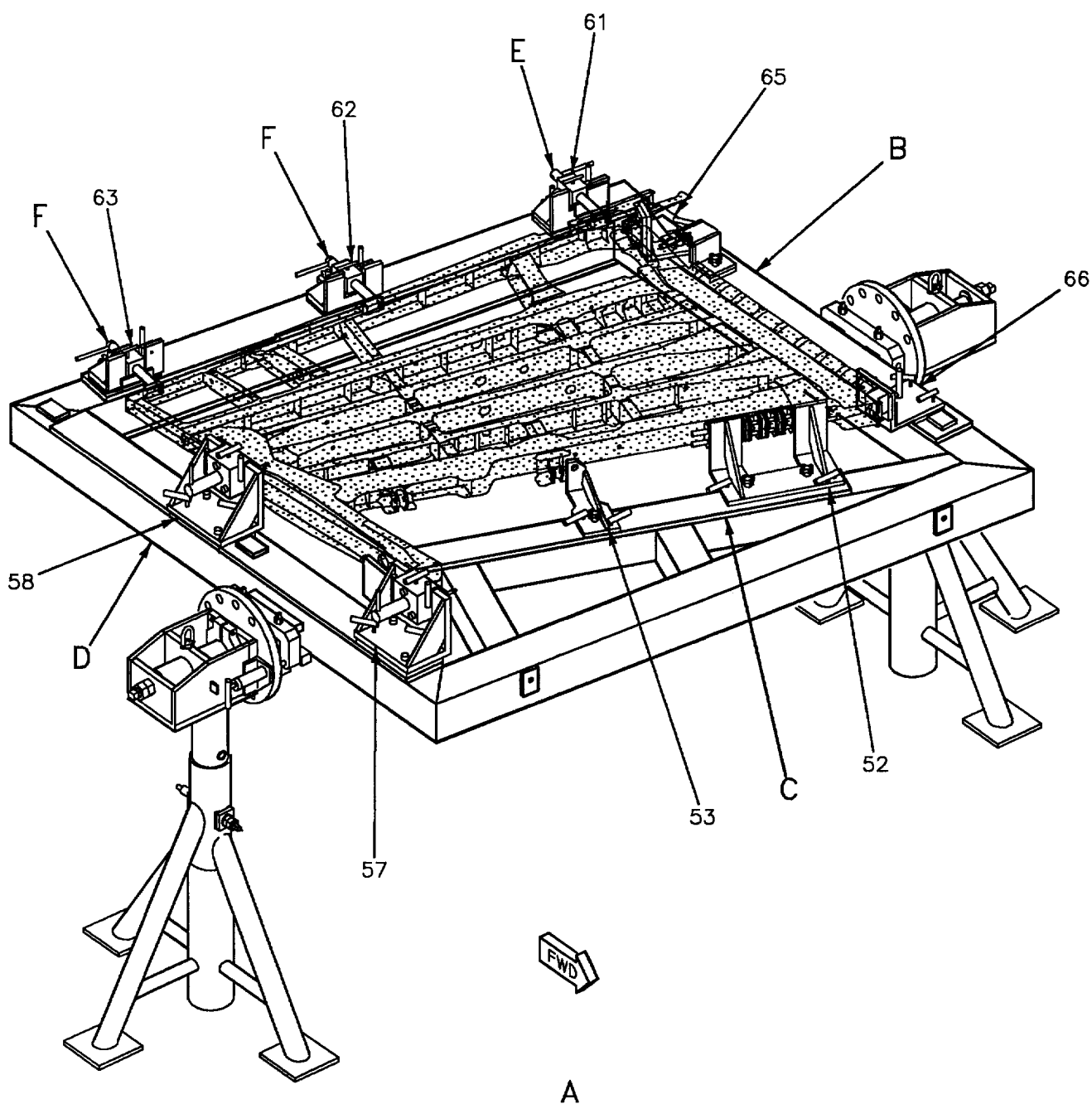


Figure 3. Installation of Outer Wing into Fixture (Sheet 2)



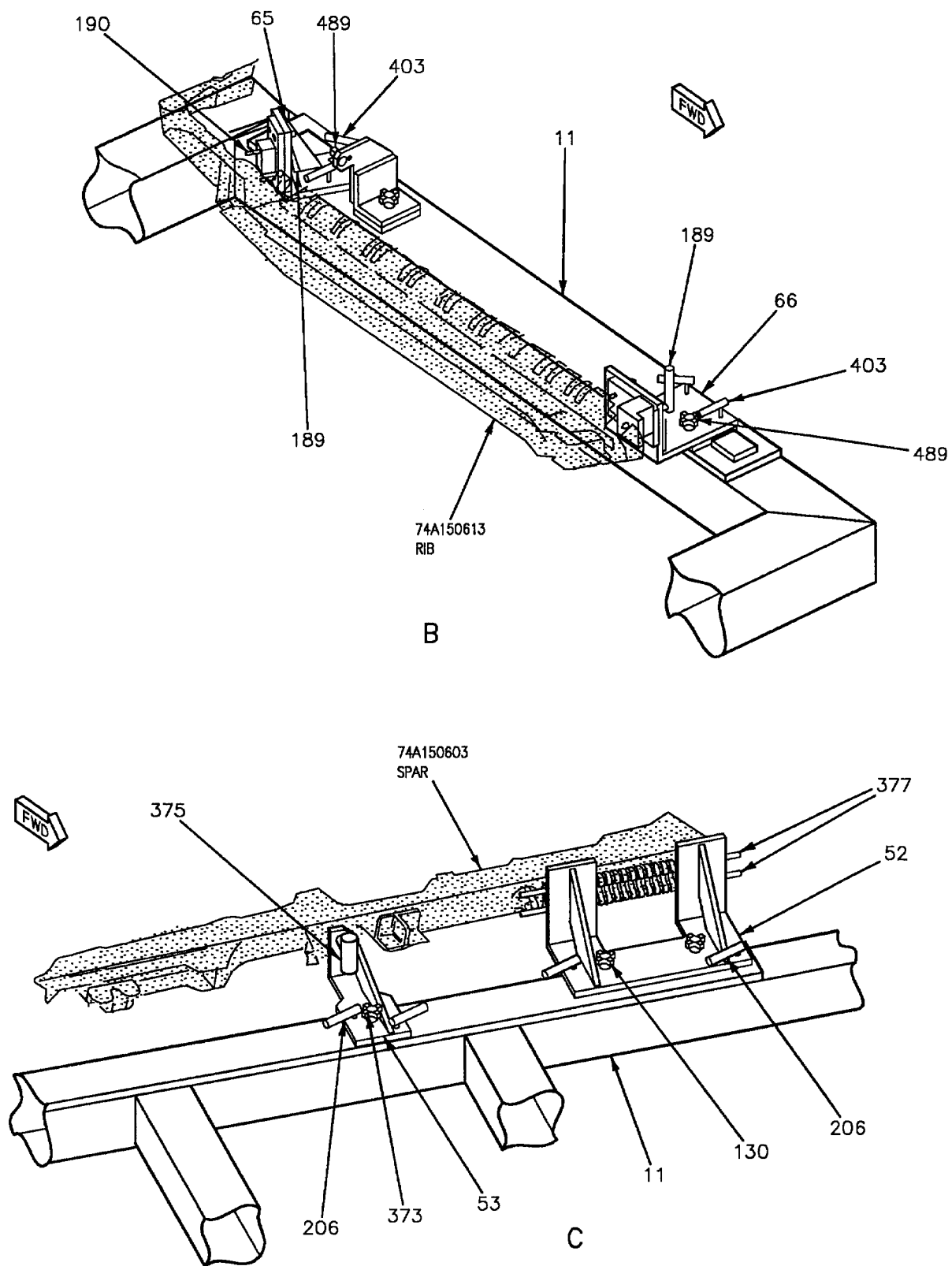


Figure 3. Installation of Outer Wing into Fixture (Sheet 3)

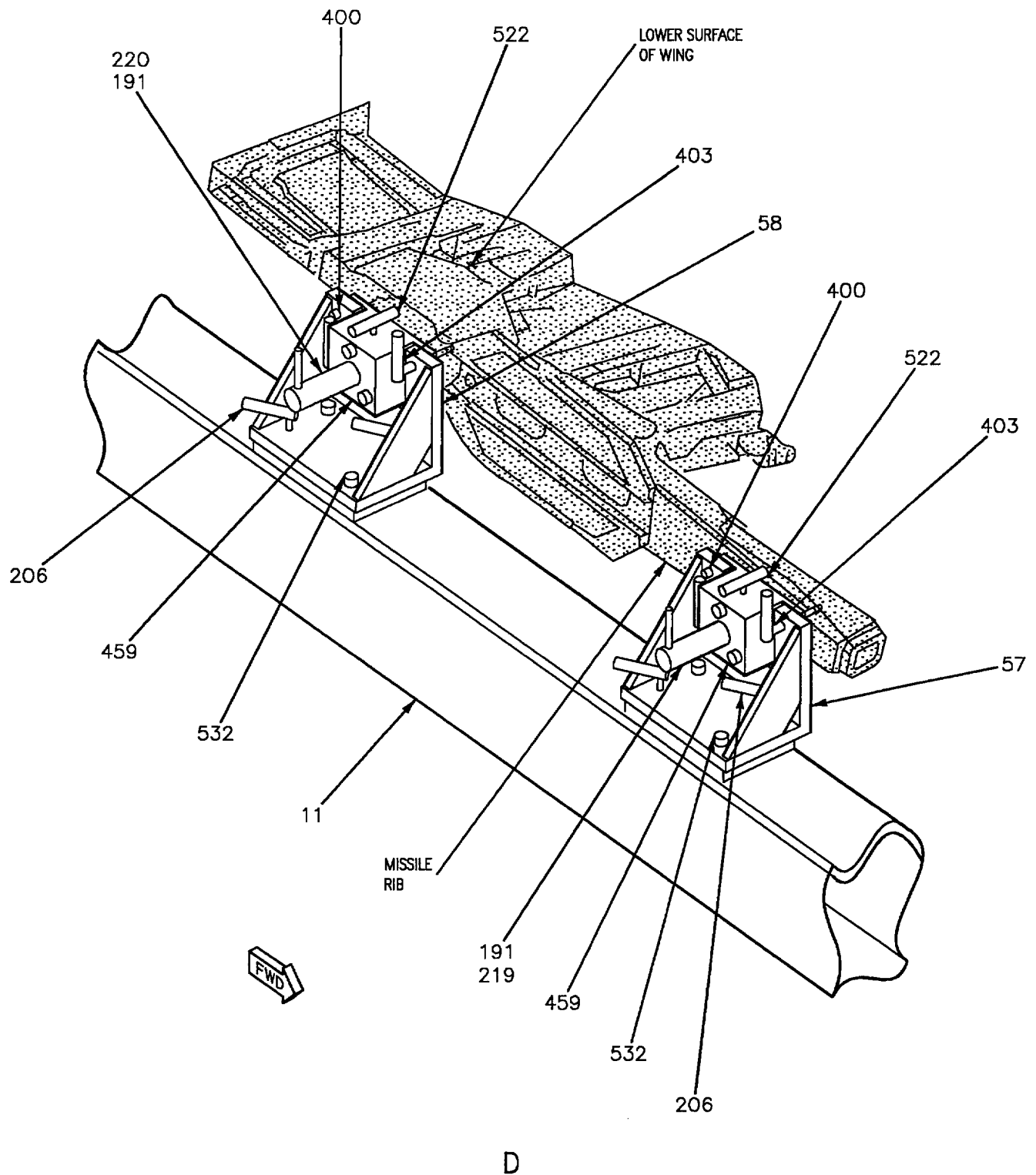


Figure 3. Installation of Outer Wing into Fixture (Sheet 4)

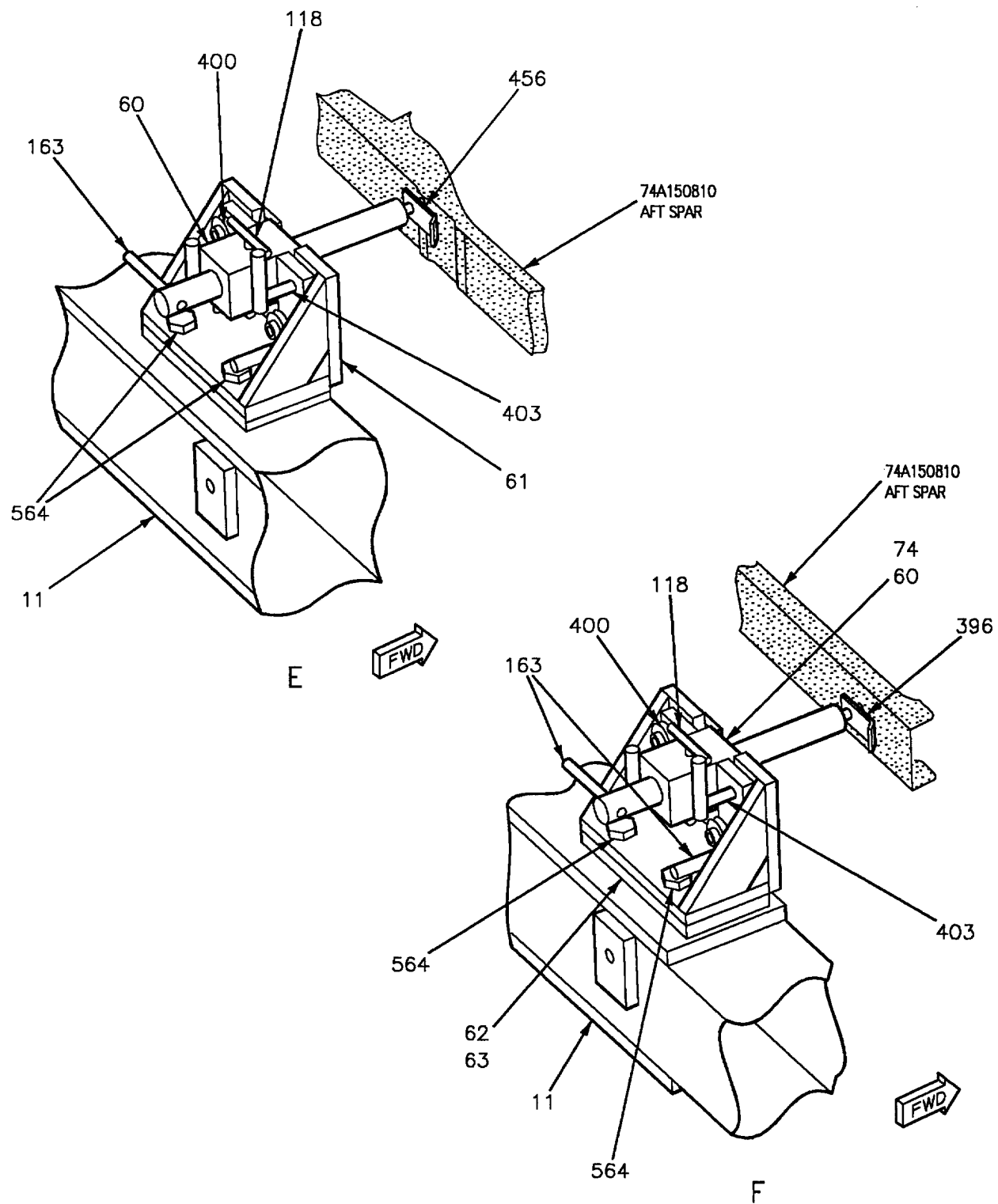


Figure 3. Installation of Outer Wing into Fixture (Sheet 5)

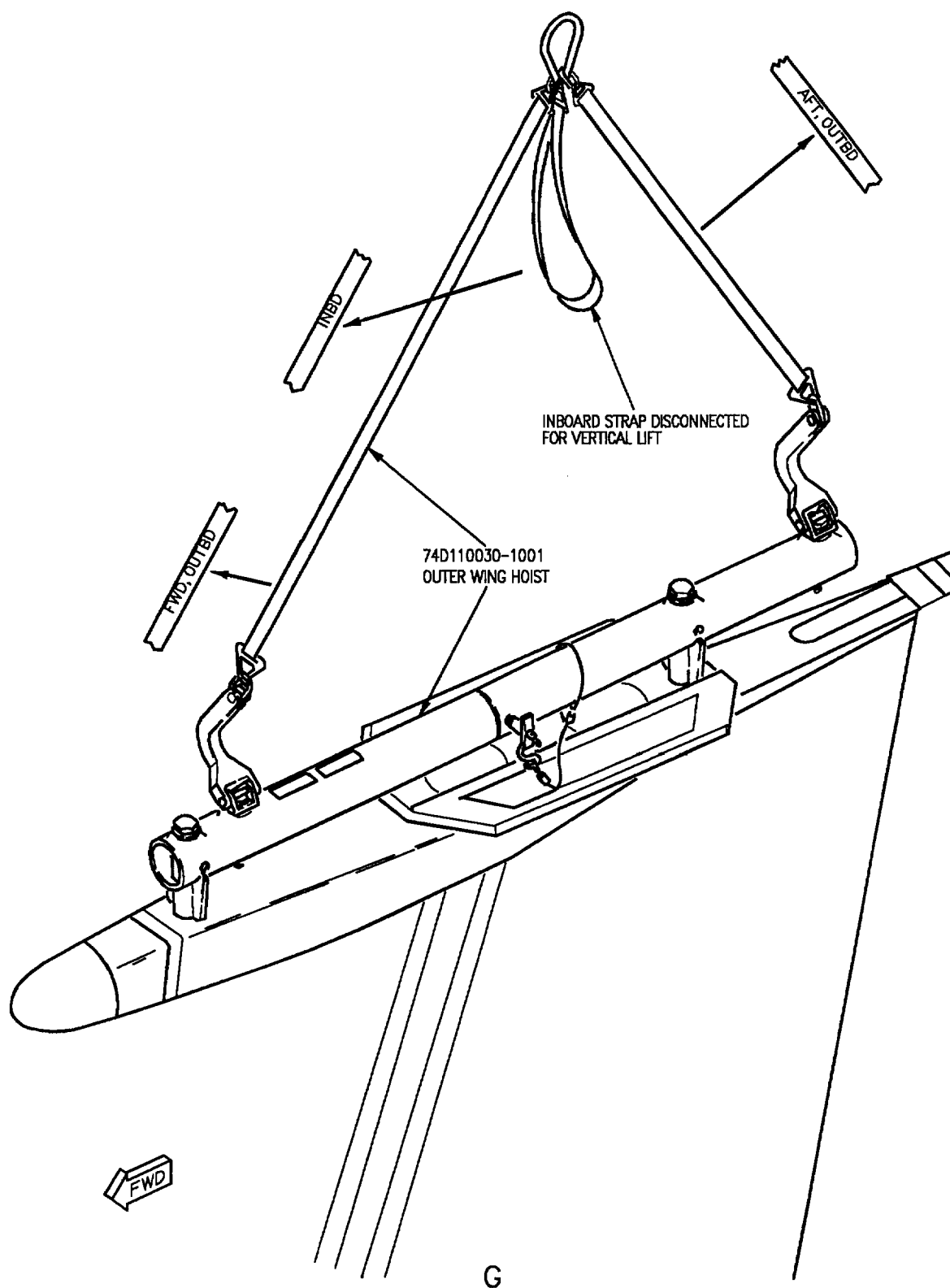


Figure 3. Installation of Outer Wing into Fixture (Sheet 6)


Detail No.	Name	Function
11	Frame	Main fixture assembly, supports details.
13 	Spindle	Supports and rotates maintenance fixture.
14 	L-pin	Locates detail 13.
52	Locator	Locates leading edge flap transmission lugs to fixture.
53	Locator	Locates fixture to leading edge flap support.
57, 58	Locator	Locates missile rib to fixture.
60	Weld assembly	Locates aft spar to fixture.
61, 62, 63	Locator	Locates aft spar to fixture.
65, 66	Locator	Locates wing fold rib to fixture.
74	Weld assembly	Locates aft spar to fixture.
118	T-pin	Secures floating details 61, 62, and 63.
130	Hand knob	Secures detail 52 to main fixture.
163	L-pin	Positions details 61, 62 and 63 to main fixture.
189	T-pin	Secures wing fold rib to detail 66.
190	T-pin	Secures wing fold rib to detail 65.
191	Pin	Locates missile rib to fixture.
206	L-pin	Secures details 52 and 53 to main fixture.
219	Tip	Inserts in forward hole of missile rib to attach to fixture.
220	Tip	Inserts in aft hole of missile rib to attach to fixture.
373	Hand knob	Secures detail 53 to main fixture.
375	T-pin	Secures leading edge flap support to detail 53.
377	Pin	Secures leading edge flap transmission lugs to detail 52.
396	Pin	Aligns aft spar to detail 63.
400	Socket head cap screw	Secures various details to main fixture.
403	L-pin	Positions various details to main fixture.

Figure 3. Installation of Outer Wing into Fixture (Sheet 7)


Detail No.	Name	Function
456	Pin	Aligns aft spar to detail 61.
459	Locator	Aligns missile rib to detail 58.
489	Hand knob	Secures detail 65 to main fixture.
522	T-pin	Secures floating fixtures 57 and 58.
532	Socket head cap Screw	Secures detail 57 and 58 to main fixture.
564	Hex head bolt	Secures details 61, 62, and 63 to main fixture.
<b>LEGEND</b>		
 Detail of RE474000004 Maintenance Stand.		

Figure 3. Installation of Outer Wing into Fixture (Sheet 8)

6. **SPARS.** The paragraphs below locate damaged spars for repair or replacement. See figure 4.

## Support Equipment Required

None

## Materials Required

None

### 7. Forward Spar Assembly, 74A150603.

- a. Remove locator (detail 52) by removing pins (detail 377) from transmission lugs. Remove L-pins (detail 206) and hand knobs (detail 130), view A.
- b. Remove locator (detail 53) by removing T-pin (detail 375). Remove L-pins (detail 206) and hand knob (detail 373), view A.
- c. Remove locator (detail 55) by removing L-pins (detail 206) and hand knob (detail 561), view A.
- d. Remove locator (detail 56) by removing L-pins (detail 206) and hand knob (detail 562), view A.
- e. Remove damaged spar.
- f. Rough position new spar.
- g. Install locator (detail 52) by inserting L-pins (detail 206). Engage 2 pins (detail 377) through locator (detail 52) and transmission lugs. Install hand knobs (detail 130), view A.
- h. Install locator (detail 56) by inserting L-pins (detail 206). Engage pin (detail 296) through locator (detail 56) and hinge (74A150679). Install hand knob (detail 562), view A.
- i. Install locator (detail 55) by inserting L-pins (detail 206). Engage pin (detail 296) through locator (detail 55) and hinge (74A150678). Install hand knob (detail 561), view A.
- j. Install locator (detail 53) by inserting L-pins (detail 206). Insert T-pin (detail 375) through spar center tooling hole and into locator (detail 53). Install hand knob (detail 373), view A.

### 8. Aft Spar, 74A150810, Inspection.

- a. On locators (detail 61, 62 and 63), retract L-pins (detail 403) and loosen socket head cap screws (detail 400), views Band C.
- b. Position welded assembly (detail 60), two places, on locators (detail 61, 63). Position welded assembly (detail 74) on locator (detail 62), view B.
- c. Engage pins (detail 396 and 456) with tool holes in spar, view B.
- d. Engage T-pin (detail 118) in welded assembly (detail 60), 2 places, and (detail 74), and snug socket head cap screws (detail 400) for forward/aft location, view B.
- e. Inspect for 0.2500 inch gap between welded assembly (detail 60) and block (detail 409 or 511), views F and H, and between welded assembly (detail 74) and block (detail 408), view G.
- f. Inspect gap between aft spar and locator pins (details 111 and 394) using subassembly B, views D and E.

### 9. Aft Spar, 74A150810, Replacement.

- a. Remove locators (details 61, 62 and 63) by removing T-pins (detail 118) and retracting pins (details 396 and 456). Remove L-pins (detail 163) and hex head bolts (detail 564), views B and C.
- b. Remove damaged spar.
- c. Rough position new spar.
- d. Reinstall locators (details 61, 62, and 63) by inserting L-pins (detail 163) and installing hex head bolts (details 564), views B and C.
- e. Retract L-pins (detail 403) and loosen socket head cap screws (detail 400), views B and C.
- f. Insert pins (details 396 and 456) into tool holes in spar, views B and C.
- g. Install spacers (detail 395) between spar and locators (details 394 and 111) for forward/aft location, views D and E.
- h. Adjust spar until L-pins (detail 403) will install completely in locators (details 61, 62, and 63), views B and C.

i. Tighten socket head cap screws (detail 400), views B and C.

j. Fully insert T-pins (detail 118) to complete nominal location of spar, views B and C.

## 10. Rear Spar, 74A150609, Locate.

a. Remove damaged spar.

b. Locate inboard support (detail 13) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

c. Locate outboard support (detail 14) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

d. Position locator (detail 23) onto angle bracket (detail 157) and secure with hand knob (detail 546), view L.

e. Position locators (details 21 and 22) using L-pins (detail 163) and secure with hand knobs (detail 385), view L.

f. Rough position new rear spar.

g. Position rear spar next to locators (details 21, 22, and 23) using two shoulder screws (detail 488) at locators (details 21 and 22), and shoulder screw (detail 492) at locator (detail 23), through tooling holes in spar and into locators, view L.

h. Secure with nut (detail 166), 3 places, view L.

## 11. Intermediate Spar No. 3, 74A150606, Locate.

a. Remove damaged spar.

b. Locate inboard support (detail 13) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

c. Locate outboard support (detail 14) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

d. Position locator (detail 26) onto angle bracket (detail 158) with L-pins (detail 163) and secure with hand knob (detail 546), view M.

e. Position locator (detail 35) onto angle bracket (detail 159) and secure with hand knob (detail 546), view M.

f. Rough position new spar.

g. Position spar next to locators (details 26 and 35) by inserting shoulder screws (detail 491), two places, through tooling holes in spar.

h. Secure with nuts (detail 166), two places, view M.

## 12. Intermediate Spar No. 2, 74A150605, Locate.

a. Remove damaged spar.

b. Locate inboard support (detail 13) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

c. Locate outboard weld assembly (detail 14) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

d. On inboard support (detail 13), position locator (detail 24) onto angle bracket (detail 159) and L-pin (detail 163) and secure with hand knob (detail 546), view N.

e. On outboard support (detail 14), position locator (detail 35) onto angle bracket (detail 34) and secure with hand knob (detail 546), view N.

f. Rough position new spar.

g. Position new spar next to locators (detail 24 and 35) by inserting shoulder screws (detail 491), two places, through tooling holes in spar, view N.

h. Secure with nuts (detail 166), two places, view N.

## 13. Intermediate Spar No. 1, 74A150604, Locate.

a. Remove damaged spar.

b. Locate inboard support (detail 13) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

c. Locate outboard support (detail 14) onto frame (detail 11) with L-pins (detail 154) and secure with hand knobs (detail 380), view K.

d. Position locator (detail 27) onto angle bracket (detail 159) and secure with hand knob (detail 546), view P.

e. Position locator (detail 28) onto bracket (detail 34) and secure with hand knob (detail 548), view P.



f. Rough position new spar.

g. Position new spar next to locators (details 27 and 28) by inserting shoulder screws (detail 491), two places, through tooling holes in spar, view P.

h. Secure with nuts (detail 166), two places view P.

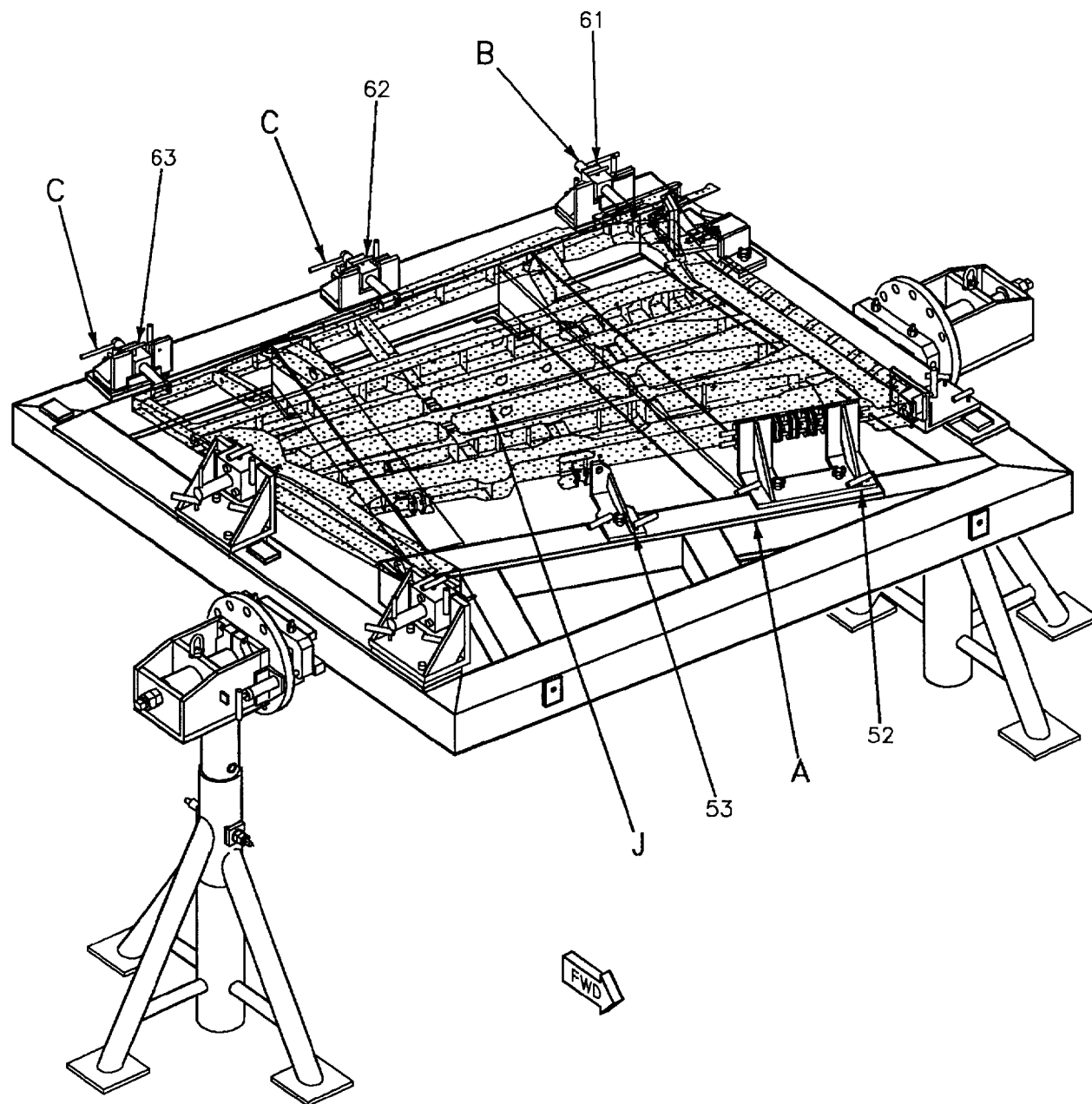
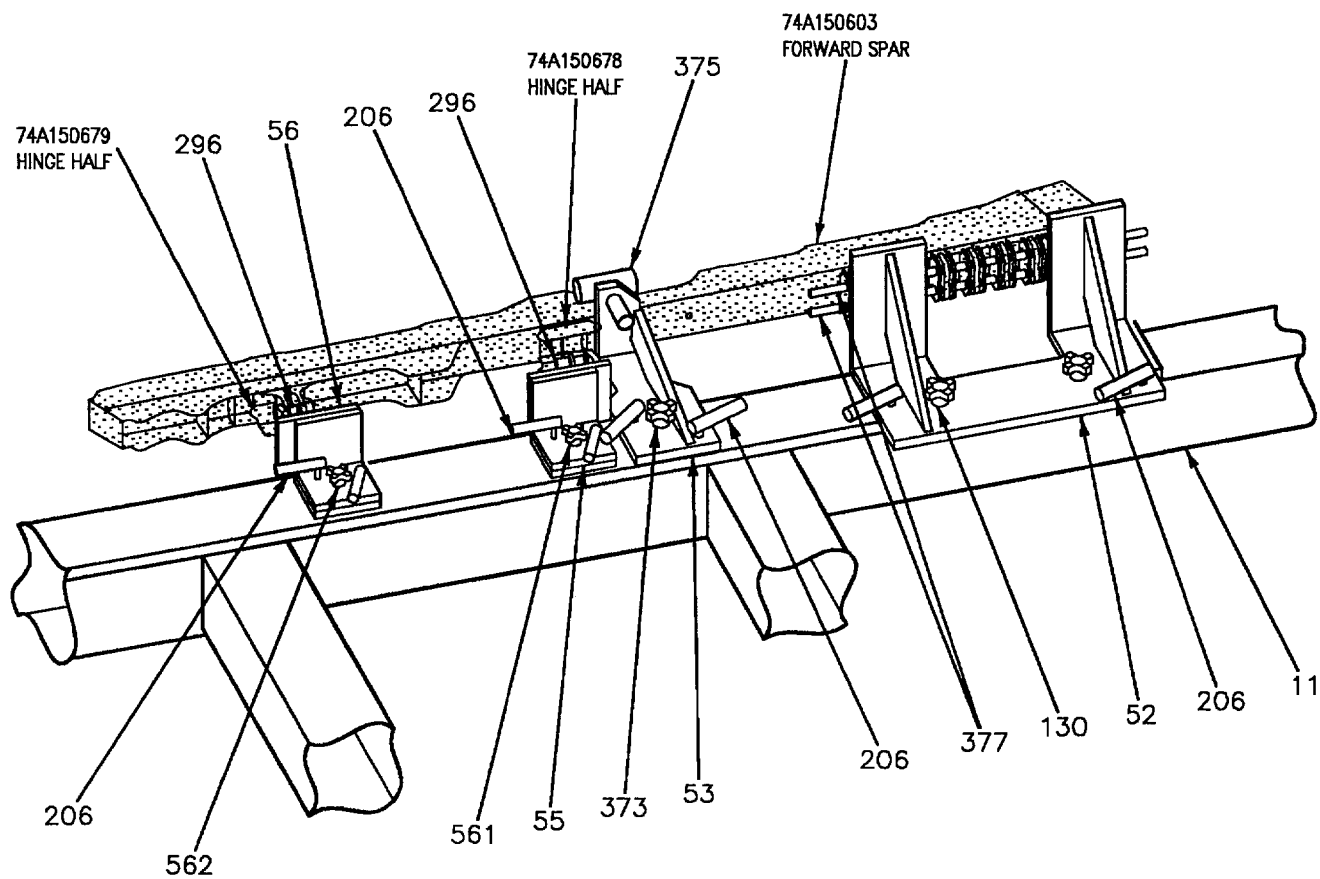


Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 1)

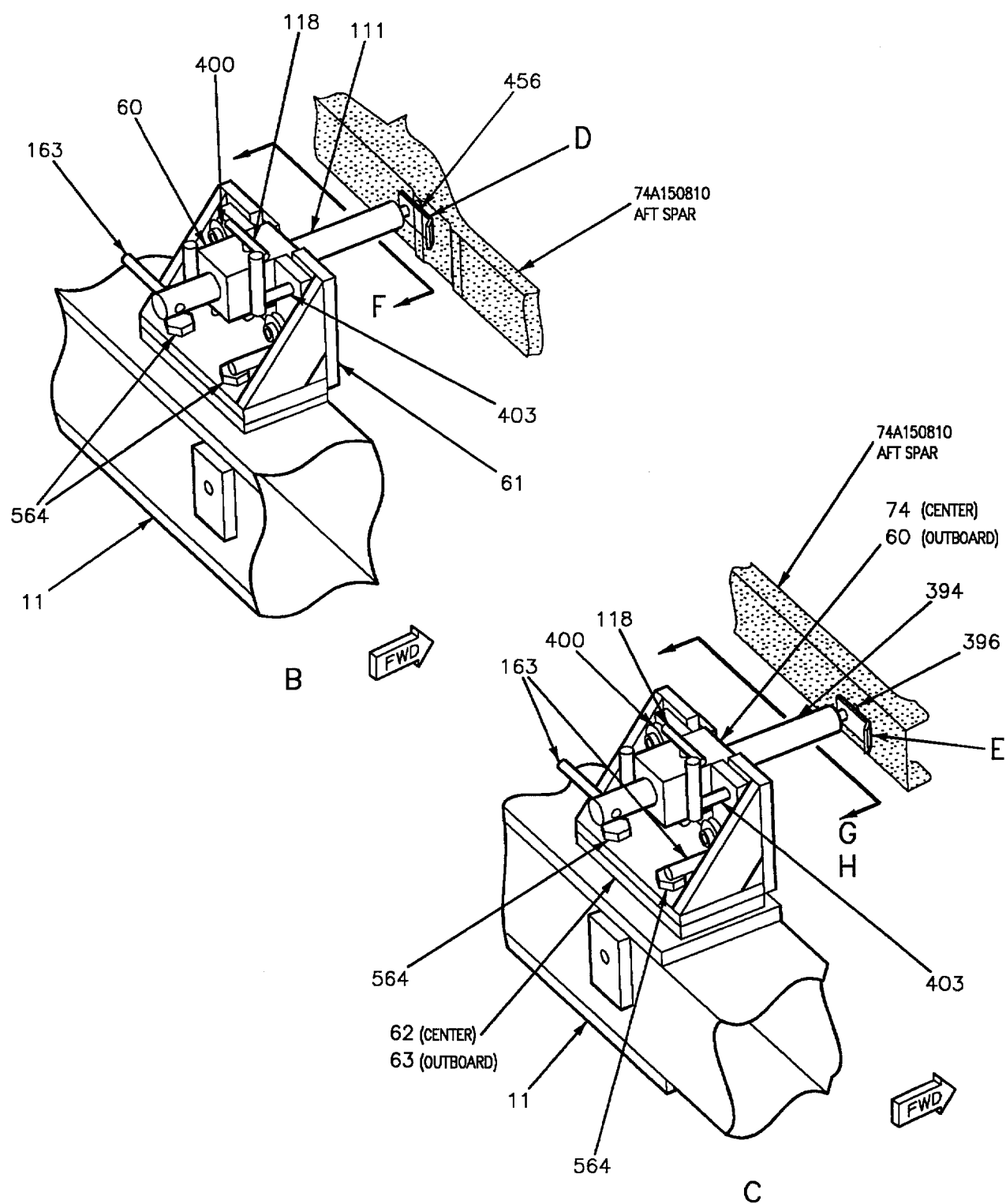
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Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 2)



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Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 3)

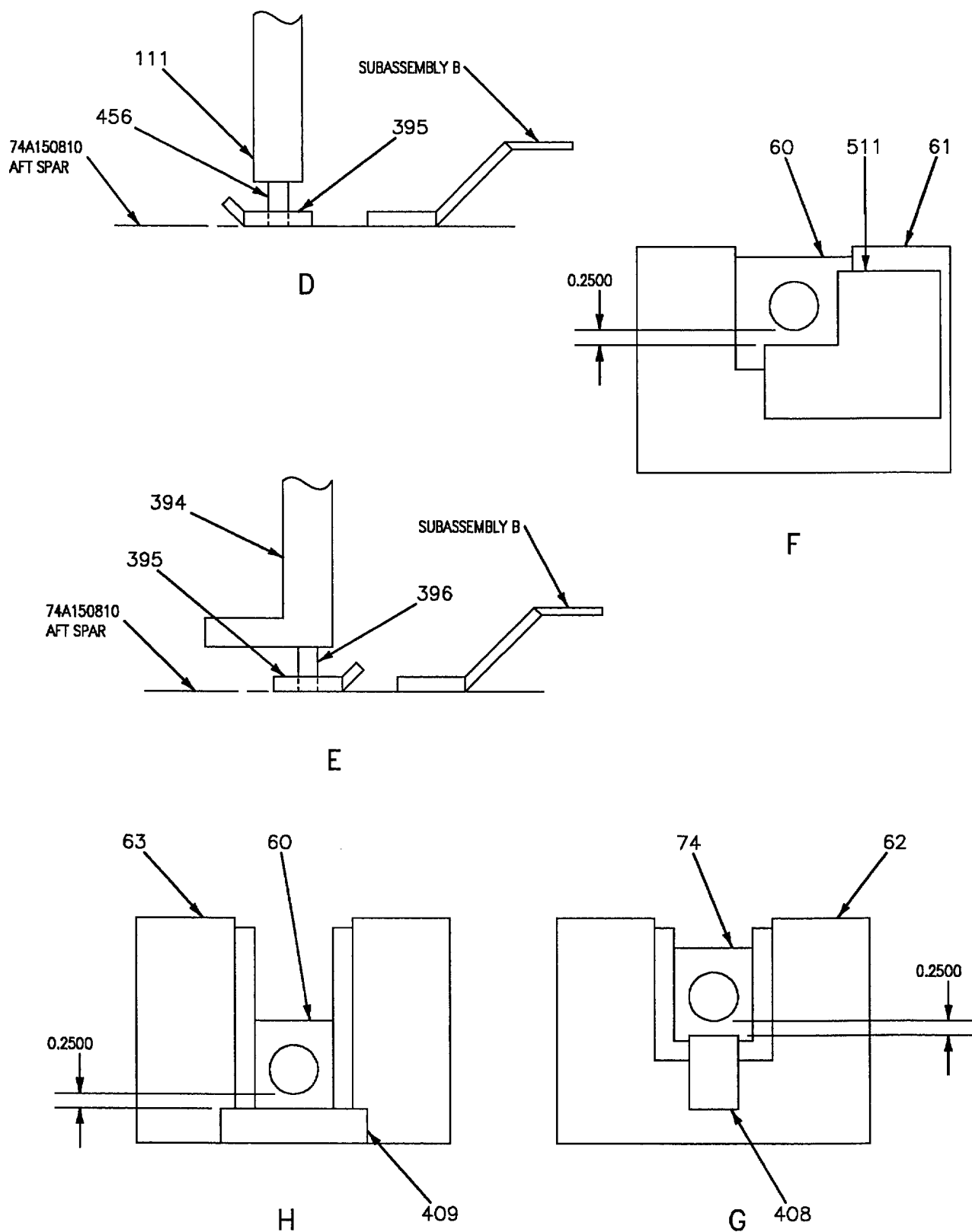


Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 4)

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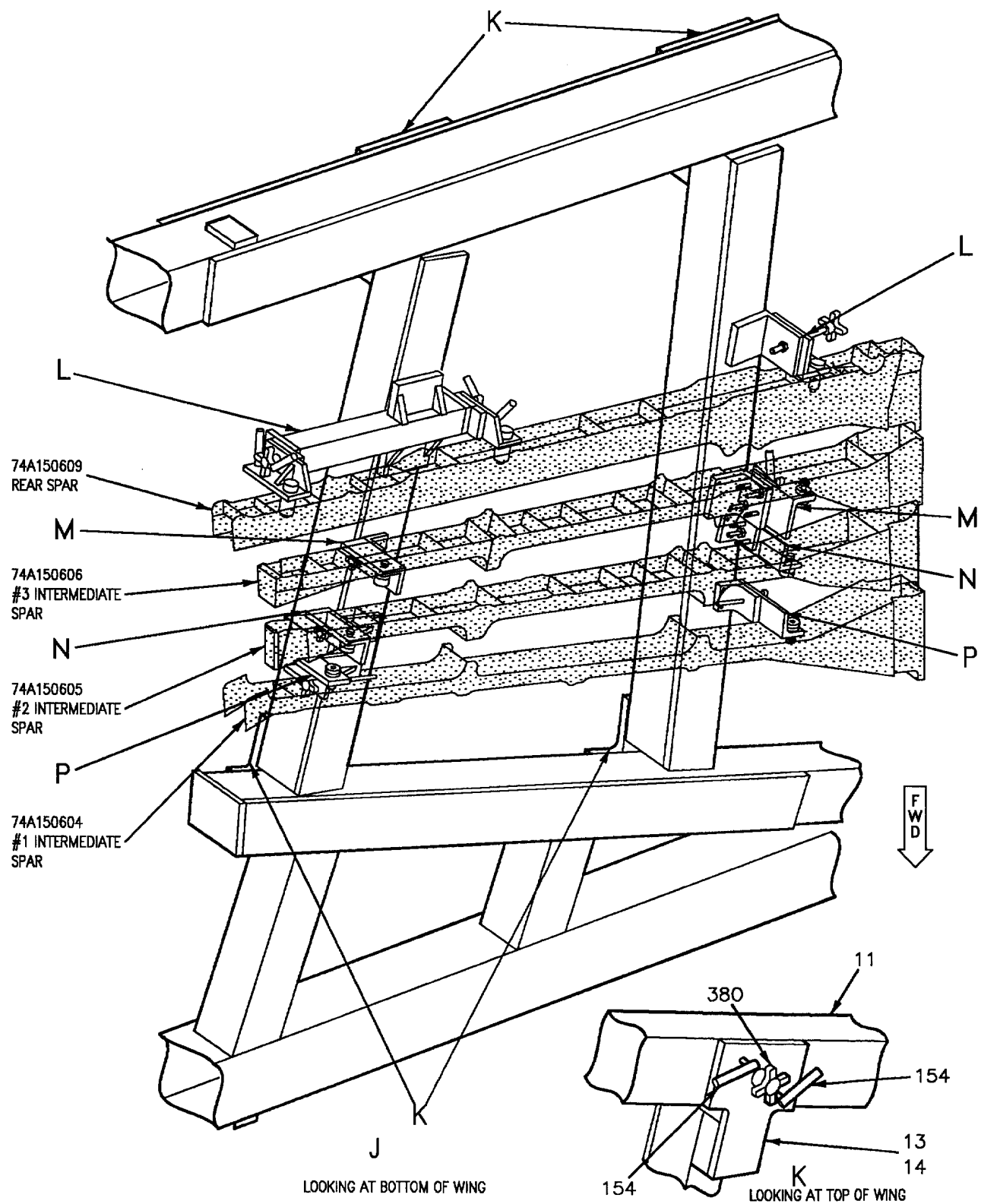
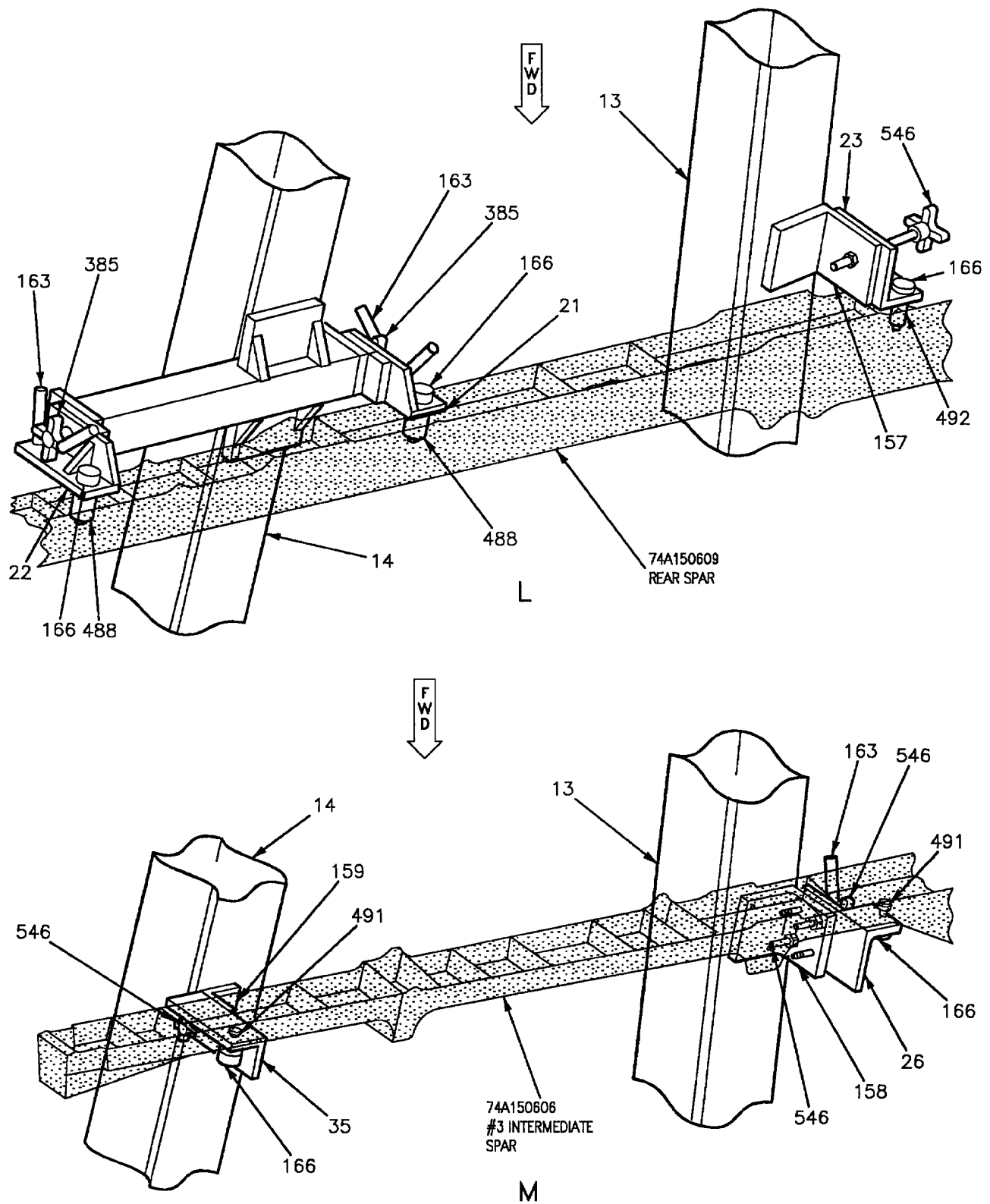


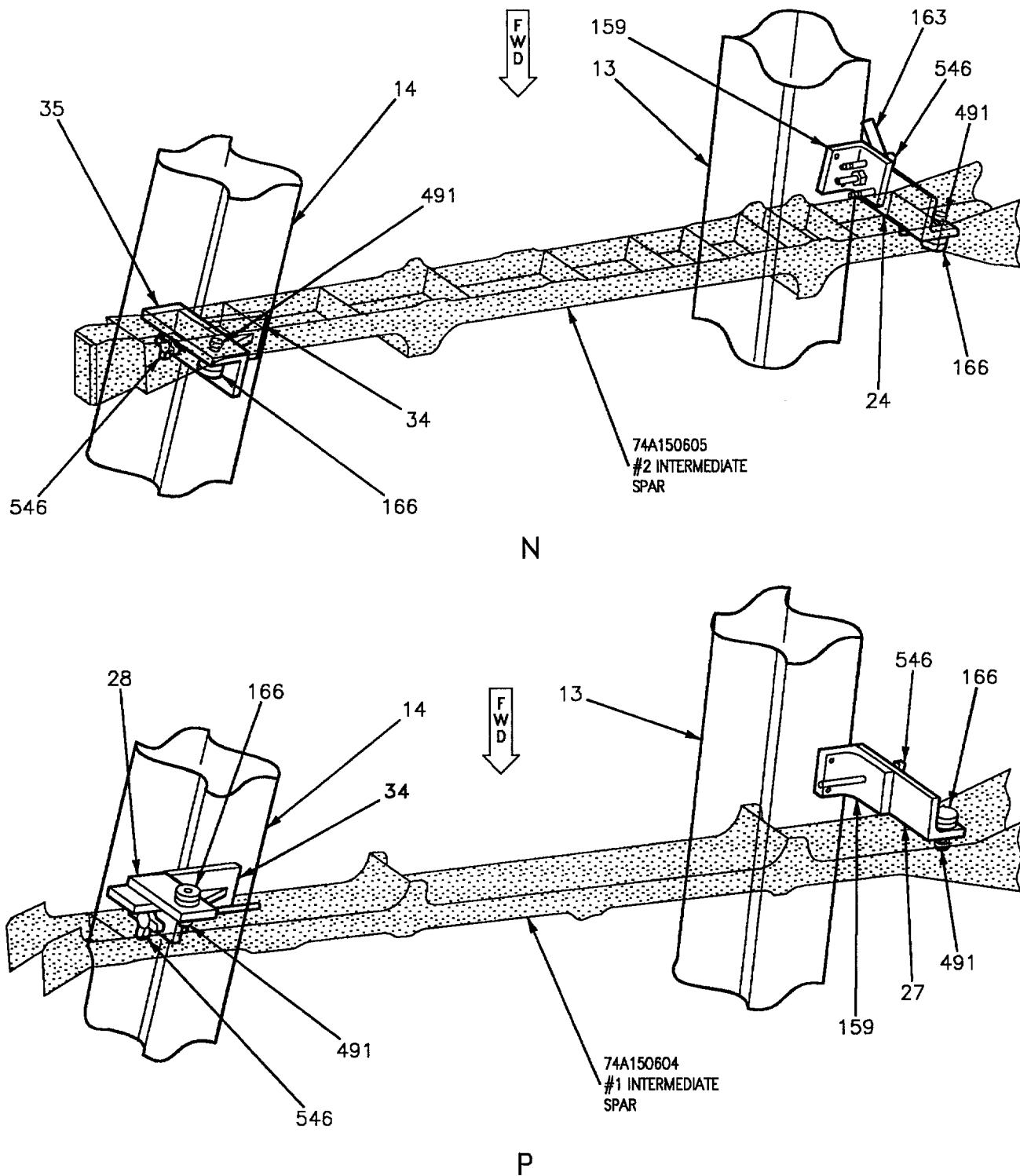
Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 5)

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Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 6)



12010407

Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810 (Sheet 7)



Detail No.	Name	Function
Subassembly B	Locator	Go-NoGo gage for aft spar.
11	Frame	Main fixture assembly, supports details.
13	Support	Supports locators for spars.
14	Support	Supports locators for spars.
21, 22, 23	Locator	Locates rear spar.
24	Locator	Locates 74A150605 intermediate spar #2.
26	Locator	Locates 74A150604 intermediate spar #1.
27, 28	Locator	Locates 74A150606 intermediate spar #3.
34	Bracket	Support detail 28.
35	Locator	Locates 74A150605 intermediate spar #2.
52, 53, 55, 56	Locator	Locates front spar.
60	Welded assembly	Added to detail 61 and/or 63 to form locator.
61, 62, 63	Locator	Locates aft spar.
74	Welded assembly	Added to detail 62 to form locator.
111	Spacer	Used to locate forward/aft location of aft spar.
118	T-pin	Secures detail 111 to detail 61, also secures detail 394 to detail 62/63.
130	Hand knob	Secures detail 52.
154	L-pin	Locates detail 13.
157	Angle bracket	Locates and secures detail 23.
158	Angle bracket	Locates 74A150604 intermediate spar #1 to detail 26.
159	Angle bracket	Locates 74A150604 intermediate spar #1 to detail 35, also locates 74A150605 intermediate spar #2 to detail 24.
163	L-pin	Locates details 24, 61, 62 and 63.
166	Nut	Secures spars to locators.
206	L-pin	Locates detail 52, 53, 55 and 56.

Figure 4. Spars 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810  
(Sheet 8)

Detail No.	Name	Function
296	Pin	Locates front spar to details 55 and 56.
373	Hand knob	Secures details 53.
375	T-pin	Locates front spar to detail 53.
377	Pin	Locates transmission lugs to detail 52.
380	Hand knob	Secures detail 13.
385	Hand knob	Secures detail 21.
394	Locator pin	Locates 0.125 gap on aft spar.
395	Spacer	Used in forward and aft location of aft spar.
396	Pin	Locates aft spar to detail 62 and 63.
400	Socket head cap screw	Secures detail 60 to detail 61 and detail 63.
403	L-pin	Locates detail 65 and 66.
408	Block	Locates 0.2500 gap between detail 74 and aft spar.
409, 511	Block	Locates 0.2500 gap between detail 60 and aft spar.
456	Pin	Locates aft spar to detail 61.
488	Shoulder screw	Secures rear spar to detail 23.
491	Shoulder screw	Positions 74A150604 intermediate spar #1 to locators.
492	Shoulder screw	Locates rear spar to detail 23.
546	Hand knob	Secures detail 23.
548	Hand knob	Secures detail 28.
561	Hand knob	Secures detail 55.
562	Hand knob	Secures detail 56.
564	Hex head bolt	Secures details 61, 62, and 63 to main fixture.

Figure 4. Spars, 74A150603, 74A150604, 74A150605, 74A150606, 74A150609, 74A150810  
(Sheet 9)

14. **RIBS.** The paragraphs below locate ribs for repair or replacement. See figure 5.

## Support Equipment Required

None

## Materials Required

None

15. **Rib No. 4, 74A150616, Locate.**

a. Remove damaged rib.

b. Locate inboard welded assembly (detail 13) onto frame (detail 11) with L-pins (detail 154) and hand knobs (detail 380), view A.

c. Position locator (detail 33) on bracket (detail 168) with L-pins (detail 163) and secure with hand knob (detail 546), view C.

d. Position rib next to locator (detail 33) and secure with C-clamp.

e. Install rib.

16. **Rib, 74A150617, Locate.**

a. Remove damaged rib.

b. Locate inboard welded assembly (detail 13) onto frame (detail 11) with L-pins (detail 154) and hand knobs (detail 380), view A.

c. Position locator (detail 72) on angle (detail 169) with L-pins (detail 163) and secure with hand knob (detail 547), view B.

d. Position rib next to locator (detail 72) and install.

17. **Rib, 74A150618, Locate.**

a. Remove damaged rib.

b. Locate inboard welded assembly (detail 13) onto frame (detail 11) with L-pins (detail 154) and hand knobs (detail 380), view A.

c. Position locator (detail 383) on plate (detail 25) with L-pins (detail 163) and secure hand knobs (detail 546), view D.

d. Position rib next to locator (detail 383) and install.

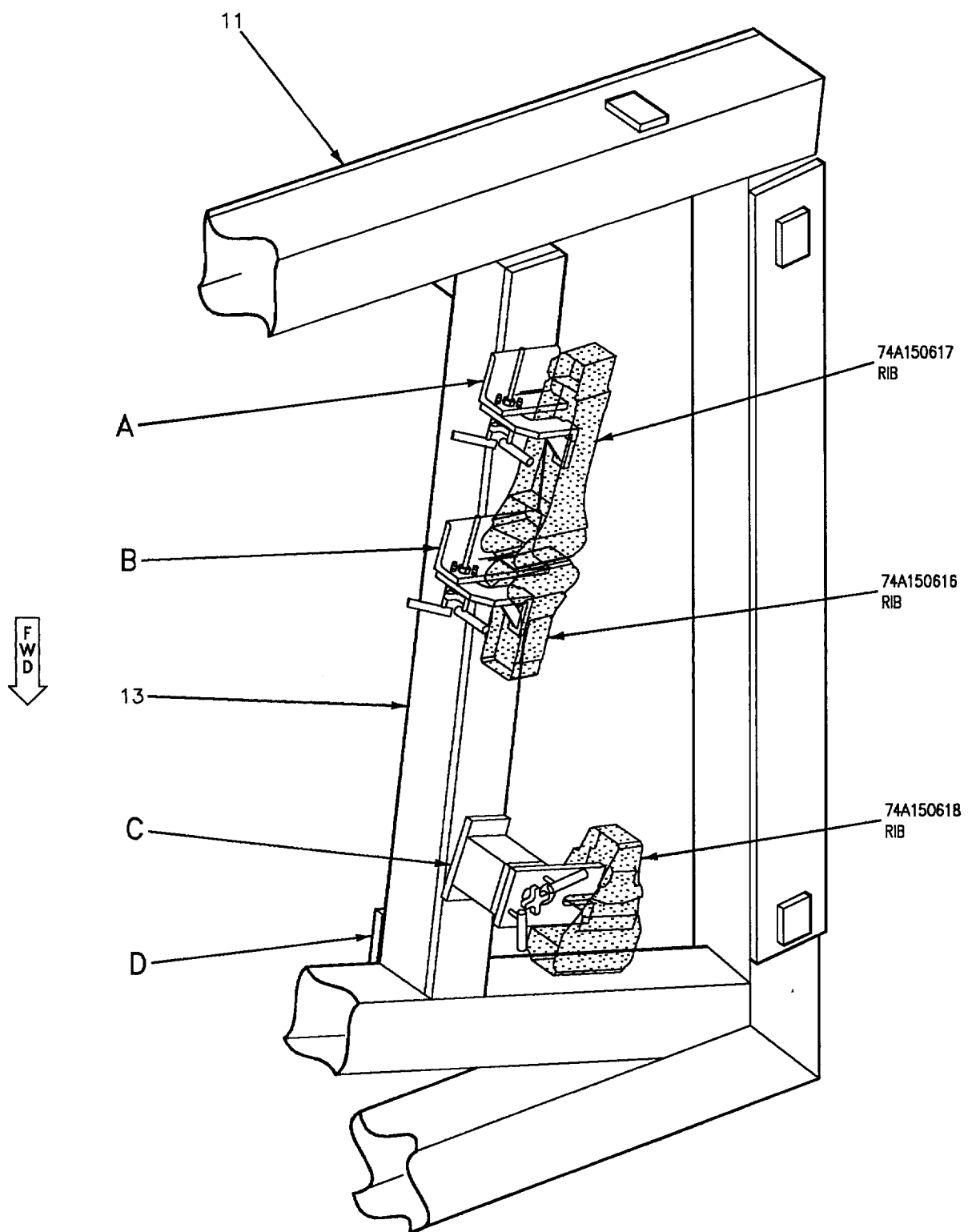


Figure 5. Ribs, 74A150616, 74A150617, 74A150618 (Sheet 1)

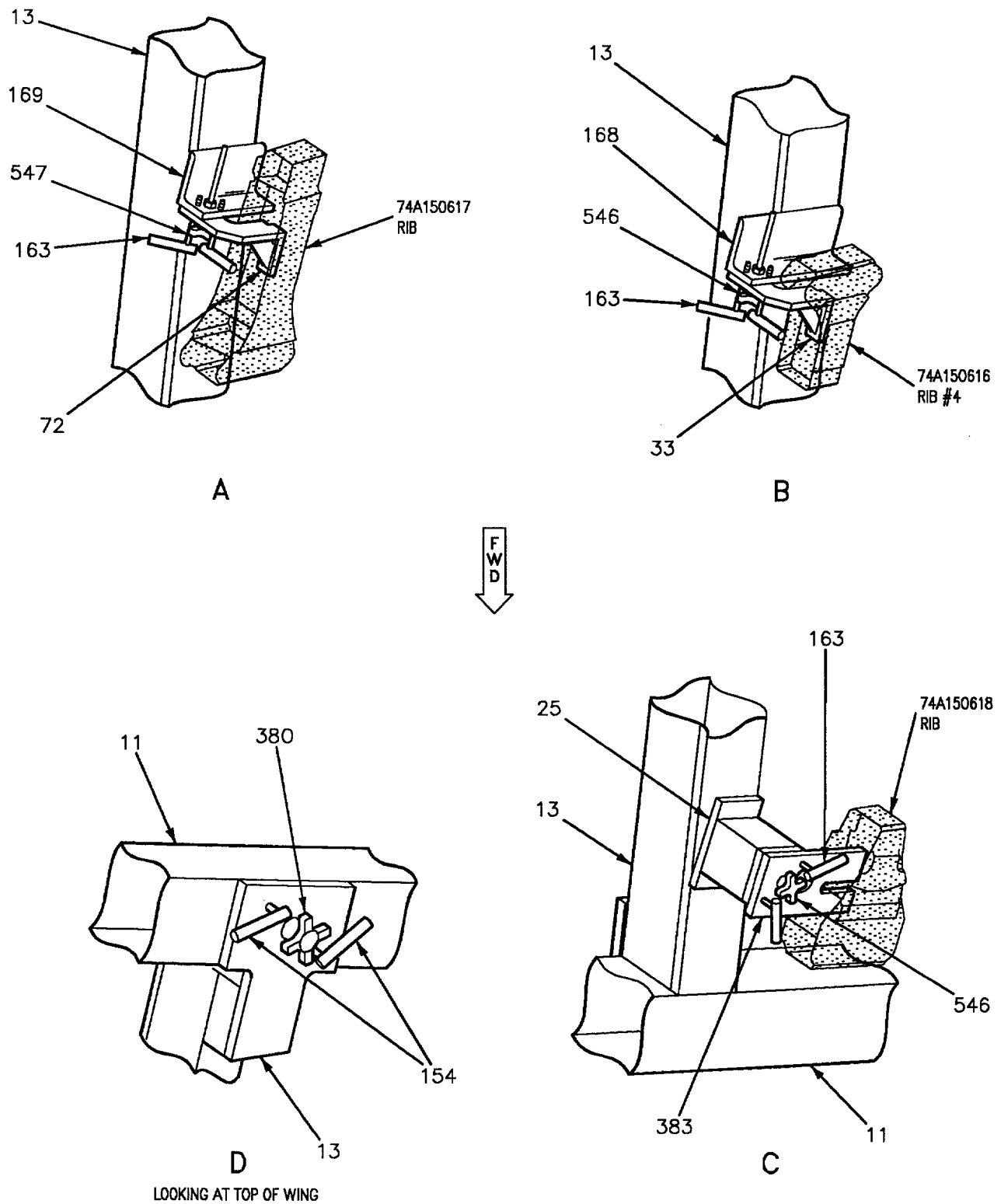


Figure 5. Ribs, 74A150616, 74A150617, 74A150618 (Sheet 2)

Detail No.	Name	Function
11	Frame	Main fixture assembly, supports details.
13	Welded Assembly	Supports locators for ribs.
25	Welded Assembly	Locates detail 383.
33	Locator	Locates 74A150617 rib.
72	Locator	Locates 74A150616 rib #4.
154	L-pin	Locates detail 13.
163	L-pin	Locates details 33 and 72.
168	Angle	Locates detail 33.
169	Bracket	Positions detail 72.
380	Hand knob	Secures detail 13.
383	Locator	Locates 74A150618 rib.
546	Hand knob	Secures detail 33.
547	Hand knob	Secures detail 72.

Figure 5. Ribs, 74A150616, 74A150617, 74A150618 (Sheet 3)

18. **WING FOLD RIB.** The paragraphs below locate wing fold rib and support for repair or replacement. See figure 6.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Reamer, 0.328 Dia.	TFIM 25.1183282
Reamer, 0.344 Dia.	TFIM 25.1183438

### Materials Required

None

#### 19. Connecting Link Support, 74A150712, Locate/Rework.

a. Position locator (detail 186) onto frame (detail 11) and secure with hand knob (detail 130), view A.

b. For existing support:

(1) Install bushing (detail 182) into locator (detail 186), view A.

(2) Insert pin (detail 391) through bushing (detail 182) and into hole of support, view A.

(3) Inspect gap between support and locator (detail 186), for forward/aft location, using subassembly B, view A.

(4) If first oversize rework is required, ream holes in line to 0.328 diameter using drill bushing (detail 180) and reamer, view A.

(5) If second oversize rework is required, ream holes in line to 0.344 diameter using drill bushing (detail 181) and reamer, view A.

c. For replacement support:

(1) Remove damaged support.

(2) Rough position new support.

(3) Install bushing (detail 182) into locator (detail 186), view A.

(4) Insert pin (detail 391) through bushing (detail 182) and into hole of support, view A.

(5) Set gap between support and locator (detail 186), for forward/aft location, using subassembly B, view A.

(6) Install support.

#### 20. Wing Fold Rib 74A150613, Inspect/Locate.

a. Remove pin (detail 190) from locator (detail 65). Loosen, do not remove, socket head cap screws (detail 400) on locator (detail 65). Position locator (detail 65) on frame (detail 11) using L-pins (detail 403). Secure with hand knob (detail 489), view B.

b. Remove pin (detail 189) from locator (detail 67). Loosen, do not remove, socket head cap screws (detail 400) on locator (detail 67). Position locator (detail 66) using L-pins (detail 403). Secure with hand knob (detail 489), view B.

c. Insert pin (detail 190) through weld assembly (detail 64) and aft tool hole of wing fold rib, view B.

d. Snug weld assembly (detail 64) to locator (detail 65) with socket head cap screws (detail 400), view B.

e. Gage 0.250 gap between pin (detail 190) and block (detail 415) for up/down location, view C.

f. Inspect gap between weld assembly (detail 64) and inboard face of rib, for inboard/outboard location, using subassembly B, view B.

g. Insert pin (detail 189) through weld assembly (detail 67) and forward tool hole of wing fold rib, view B.

h. Snug weld assembly (detail 67) to locator (detail 66) with socket head cap screw (detail 400), view B.

i. Gage 0.250 gap between pin (detail 189) and block (detail 466), two places, for inboard/outboard and up/down location, view D.

j. Inspect gap between weld assembly (detail 67) and inboard face of rib, for inboard/outboard location, using subassembly B, view D.

#### 21. Wing Fold Rib XW166.500, 74A150613, Install.

a. Remove locator (detail 65) by loosening hand knob (detail 489) and removing L-pins (detail 403), view B.

b. Remove locator (detail 187) by loosening hand knob (detail 130) and removing L-pins (detail 403), view B.

c. Remove locator (detail 66) by loosening hand knob (detail 489) and removing L-pins (detail 403), view B.

d. Rough position new rib.

e. Position locator (detail 65) onto frame (detail 11) by inserting L-pins (detail 403) and secure using hand knob (detail 489), view B.

g. Locate weld assembly (detail 64) to nominal position on locator (detail 65) using L-pins (detail 403). Secure using socket head cap screws (detail 400), view B.

h. Locate weld assembly (detail 67) to nominal position on locator (detail 66) using L-pins (detail 403). Secure using socket head cap screws (detail 400), view B.

i. Insert pin (detail 190) through weld assembly (detail 64) and aft tooling hole of wing fold rib, view B.

j. Insert pin (detail 189) through weld assembly (detail 67) and forward tooling hole of wing fold rib, view B.

k. Use spacer (detail 436) between inboard face of rib and weld assemblies (detail 67 and 64) to determine inboard/outboard location of rib, views E and F.

l. Clamp rib into place.



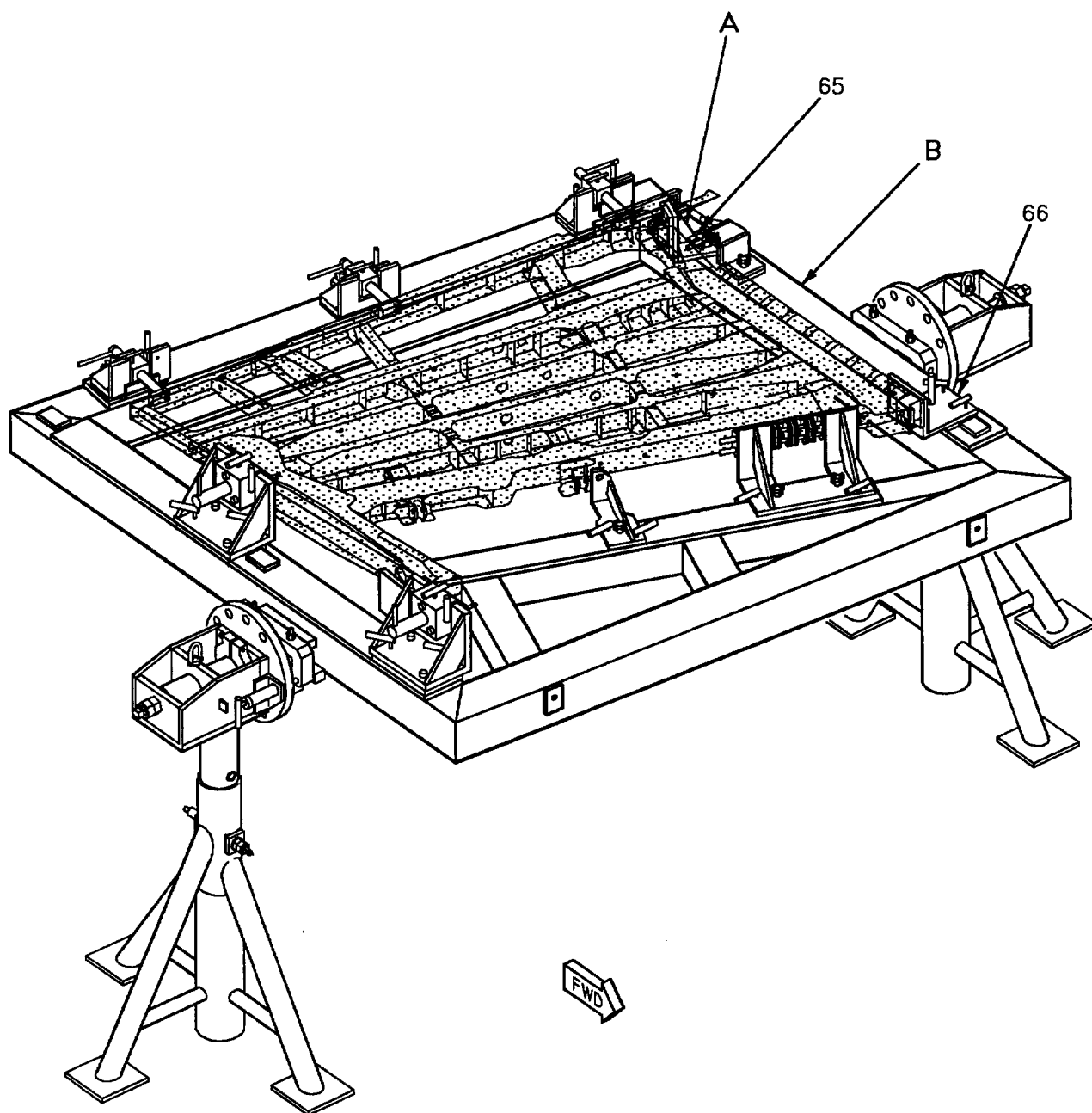
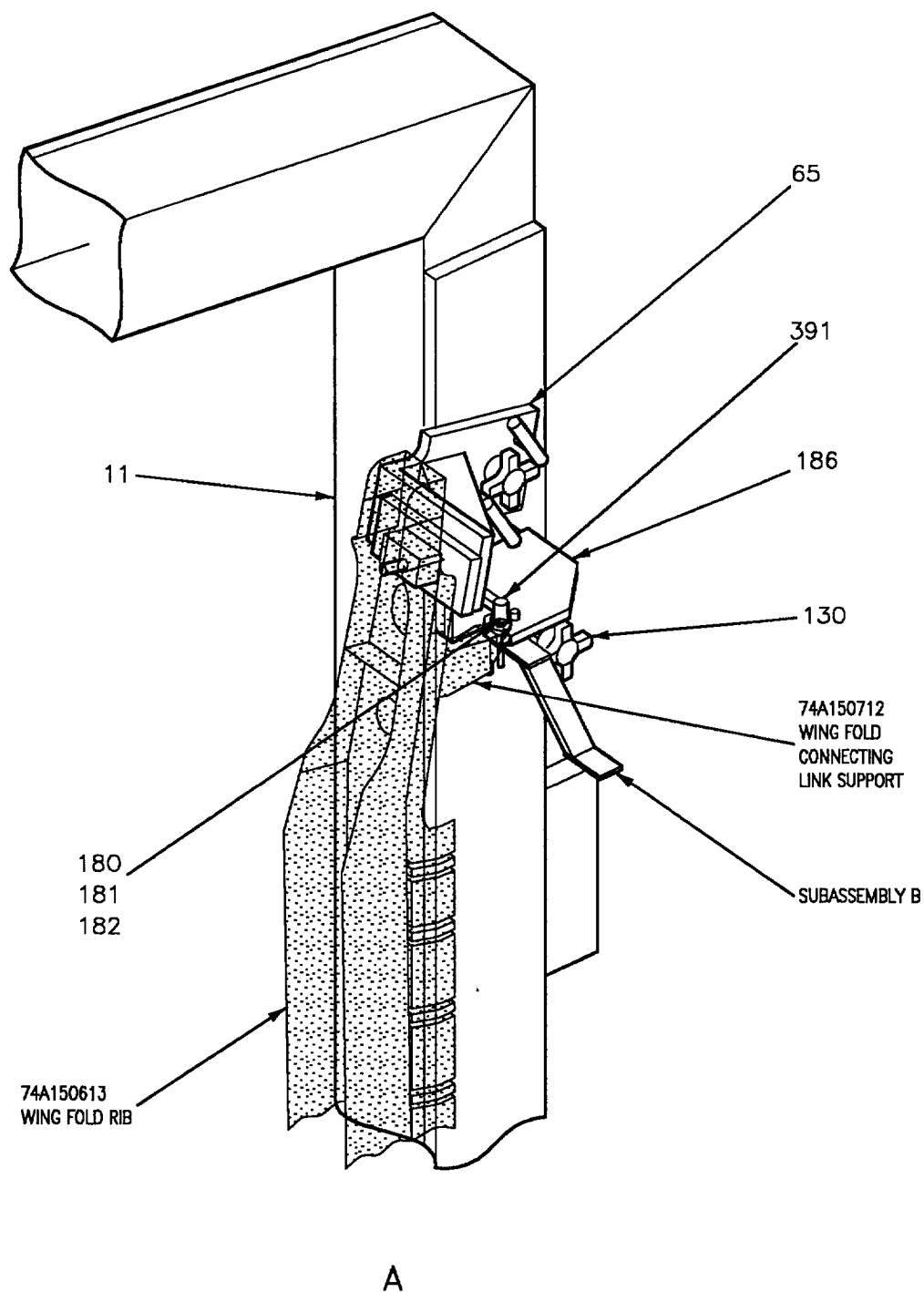


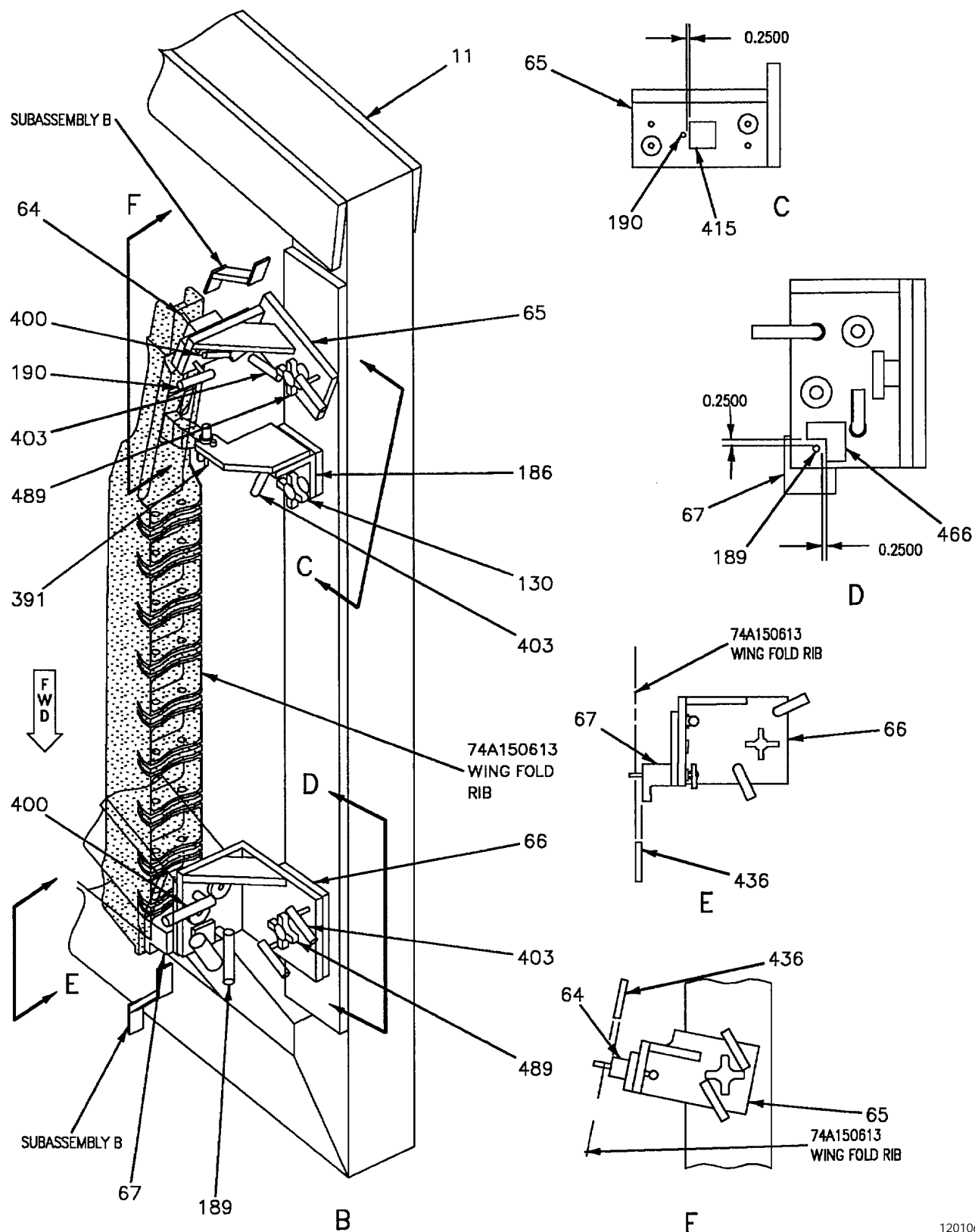
Figure 6. Wing Fold Connecting Link Support, 74A150712, and Wing Fold Rib, 74A150613 (Sheet 1)

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Figure 6. Wing Fold Connecting Link Support, 74A150712, and Wing Fold Rib, 74A150613 (Sheet 2)



Detail No.	Name	Function
Subassembly B	Locator	Used to gage inboard/outboard location of rib.
11	Frame	Main fixture assembly, supports details.
64	Weld assembly	Locates aft wing fold rib 74A150613 to detail 65.
65, 66, 67	Locator	Locates forward wing fold rib 74A150613.
130	Hand knob	Secures detail 186 to frame.
180, 181, 182	Bushing	Used to rework wing fold connecting link support.
186	Locator	Used to locate wing fold connecting link support.
189	Pin	Locates detail 67.
190	Pin	Locates detail 64.
391	Pin	Used to locate wing fold connecting link support to detail 186.
400	Socket head cap screw	Secures locators.
403	L-pin	Locates detail 66.
415	Block	Positions aft wing fold rib for up/down location.
436	Spacer	Used between wing fold rib and details 64 and 67 to determine in-board/outboard location.
466	Block	Positions forward wing fold rib for inboard/ outboard and up/down location.
489	Hand knob	Secures locators.

Figure 6. Wing Fold Connecting Link Support, 74A150712, and Wing Fold Rib, 74A150613 (Sheet 4)

22. **MISSILE SUPPORT RIB ASSEMBLY.** The procedures below locate missile rib supports for repair or replacement. See figure 7.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Repair Kit, Outer Wing	RE574150002-1

### Materials Required

None

23. **Missile Support Rib, 74A150625, Locate.** Installation for both forward and aft locations are described together, with differences indicated as required.

a. Position locators (detail 57 and 58) onto frame (detail 11) using L-pins (detail 206). Secure with socket head cap screws (detail 532), view A.

b. Loosely locate weld assembly (detail 459) on locators (details 57 and 58) with socket head cap screws (detail 400). Do not tighten socket head cap screws (detail 400), view A.

c. Insert pin (detail 191) through weld assembly (detail 459) and cross pin using T-pin (detail 522), 2 places, view A.

d. Locate spacer (detail 465) onto pin (detail 191) between weld assembly (detail 459) and rib, 2 places, view A.

e. For aft Location:

(1) Adjust rib so that pin (detail 220) can be inserted into aft tooling hole, view A.

(2) Tighten socket head cap screws (detail 400) on locator (detail 459), view A.

f. For forward Location:

(1) Adjust rib so that pin (detail 219) can be inserted into forward tooling hole, view A.

(2) Tighten socket head cap screws (detail 400) on locator (detail 459), view A.

g. Using 0.2500 thickness gage, adjust rib to blocks (detail 404, 463 and 464), views B and C.

24. **Missile Support Rib, 74A150625, Rework.** Procedures below are to rework the rib for oversize bushings.

a. Position locator (detail 521) on frame (detail 11) using L-pins (detail 206) and secure with hand knob (detail 561), view D.

b. Clamp rib to locator (detail 521), view D.

c. To aid in rib location while bushings are being removed/reworked, locator (detail 79) may be positioned on block (detail 137) and thumb screws (detail 577) adjusted against rib, view D.

d. For forward and aft locations, position locator (detail 459) to nominal position using L-pins (detail 403) and socket head cap screws (detail 400). Remove pin (detail 191), view A.

e. Remove damaged bushing from forward/aft missile rib using RE574150002-S-B of the RE574150002 Outer Wing Repair Kit (RE5), view F.

f. Measure and record outside diameter of removed damaged bushings to determine requirement for first or second oversize replacement bushing.

g. For first oversize bushing replacement:

(1) Ream missile rib bushing hole using SPT27RE574150002 of RE5, extension (detail 122) of RE5, bushing tip (detail 167) of RE5, and 74D110314-1001 or -1009 drilling machine, view G. For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(2) Final ream hole by installing drill bushing (detail 119) into weld assembly (detail 459) and reaming hole using SPT28RE574150002, view G.

h. For second oversize bushing replacement:

(1) Ream missile rib bushing hole using SPT29RE674150002 of RE5, extension (detail 122) of RE5, bushing tip (detail 166) of RE5, and 74D110314-1001 or -1009 drilling machine, view G. For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(2) Final ream hole by installing drill bushing (detail 120) into weld assembly (detail 459) and reaming hole using SPT30RE574150002, view G.

i. Install replacement bushing into missile rib using RE574150002-S-C of the Outer Wing Repair Kit, view J.

**25. Missile Support Rib, 74A150625, Replacement.** Installation for both forward and aft locations are described together, with differences indicated as required.

a. Position locators (detail 57 and 58) onto frame (detail 11). Loosely locate weld assembly (details 57 and 58) with L-pins (details 206). Secure with socket head cap screws (detail 532), view A.

b. Locate weld assembly (detail 459) with L-pins (detail 403) and secure with socket head cap screws (details 400), view A.

c. Position locator (detail 521) with L-pins (detail 206) and secure with hand knobs (detail 130), view C.

d. For forward location:

(1) Insert pin (detail 191) through weld assembly (detail 459) and spacer (detail 465). Engage pin (detail 219) through bushings, view A.

(2) cross pin using T-pin (detail 522).

e. For aft location:

(1) Insert pin (detail 191) through weld assembly (detail 459) and spacer (detail 465). Engage pin (detail 220) through bushings, view A.

(2) Cross pin using T-pin (detail 522).

(3) Clamp rib in place.

f. Position subassembly E over forward end of missile support rib so that:

(1) Block (detail 279) and block (detail 281) are located next to missile rib for forward and aft location, view E.

(2) Block (detail 279) is next to missile support rib for inboard and outboard location.

(3) Block (detail 281) is next to missile support rib for up and down location, view E.

g. Secure subassembly E to missile support rib using clamp screws (detail 282), view E.

h. Drill 0.195 +0.0007 -0.000 diameter through bushings (detail 283), five places, for wing tip position light.

i. For closure assembly 74A150626 forward trim line, use scribe along the aft edge of block (detail 278), view K.

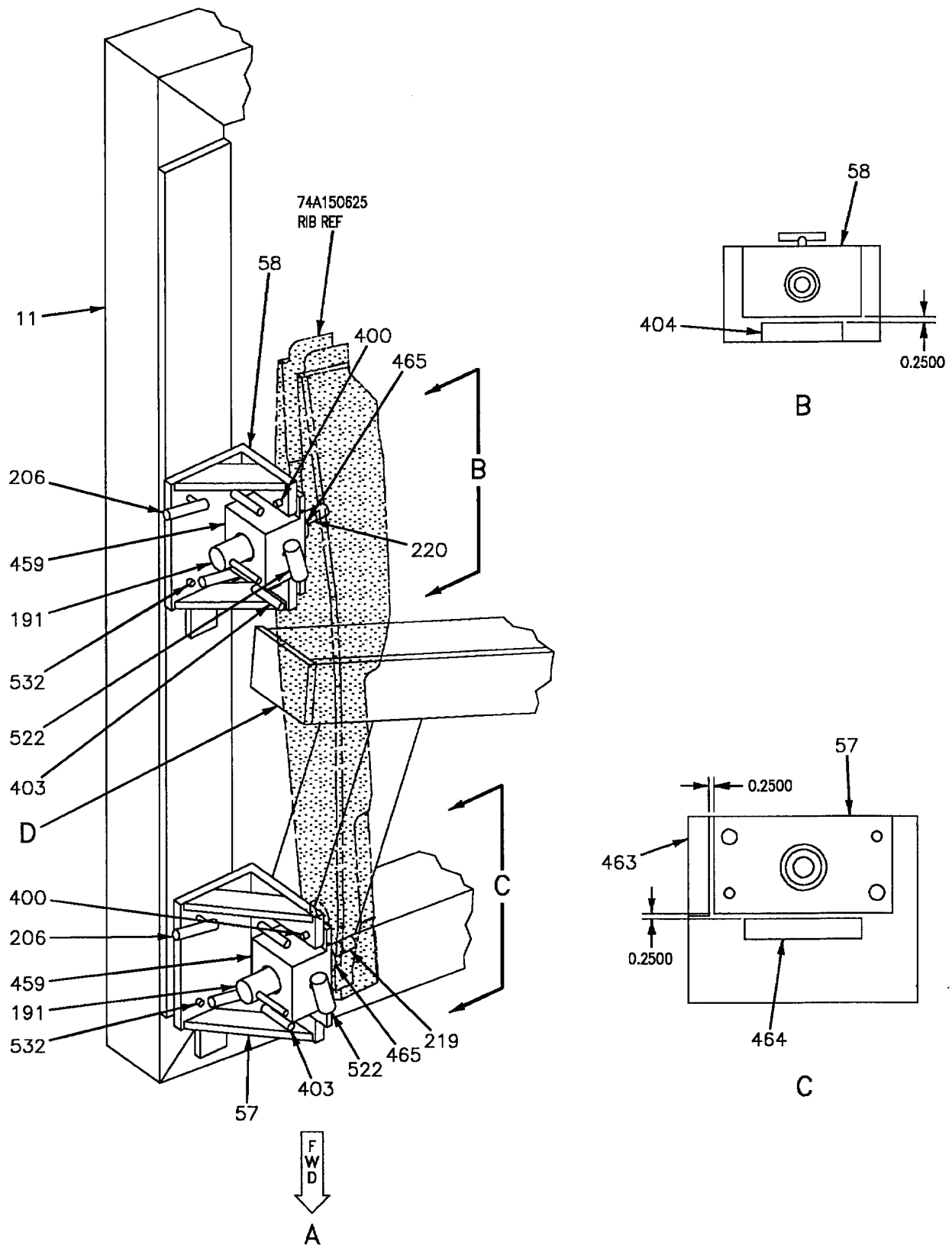


Figure 7. Missile Support Ribs, 74A150625 (Sheet 1)

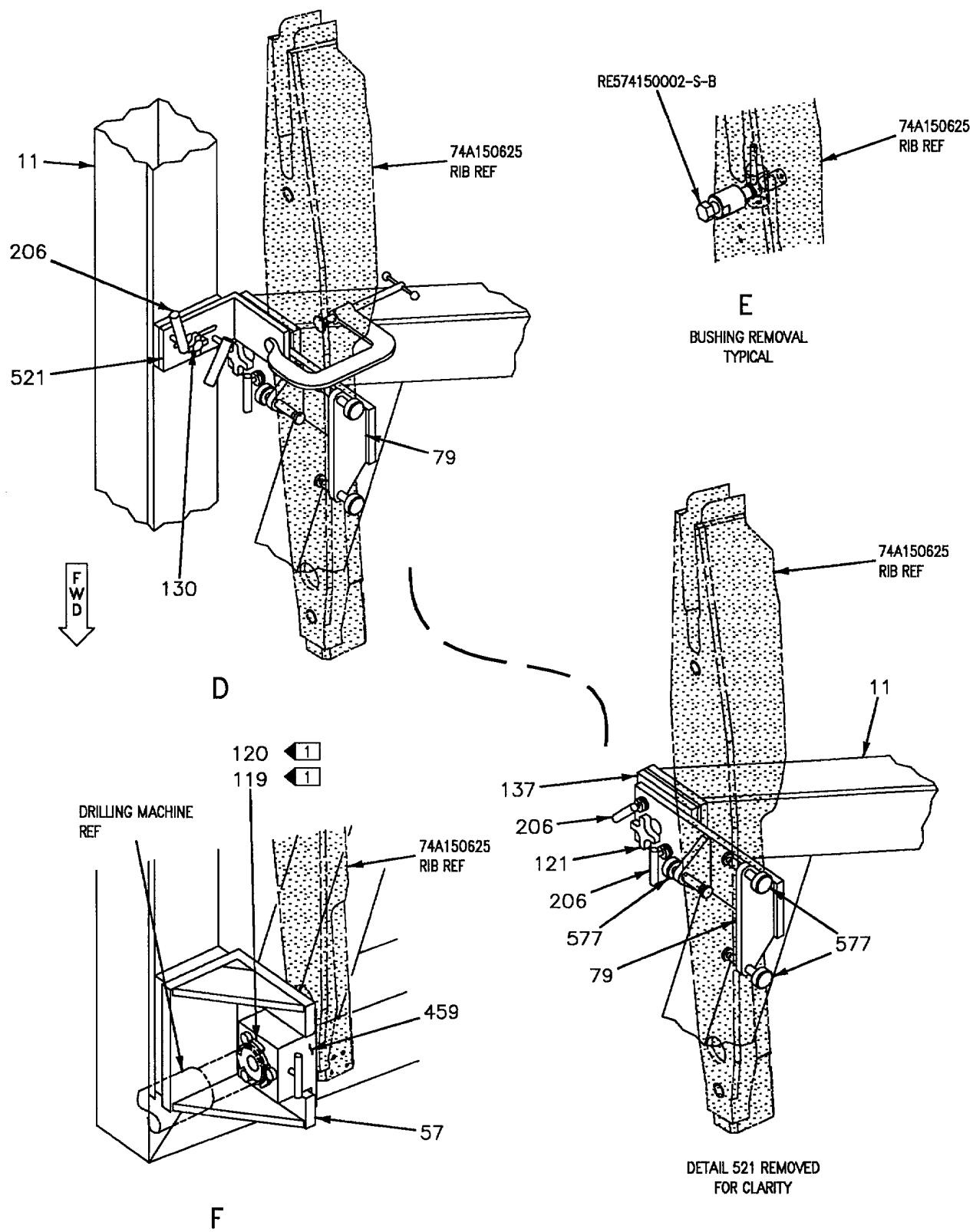


Figure 7. Missile Support Ribs, 74A150625 (Sheet 2)



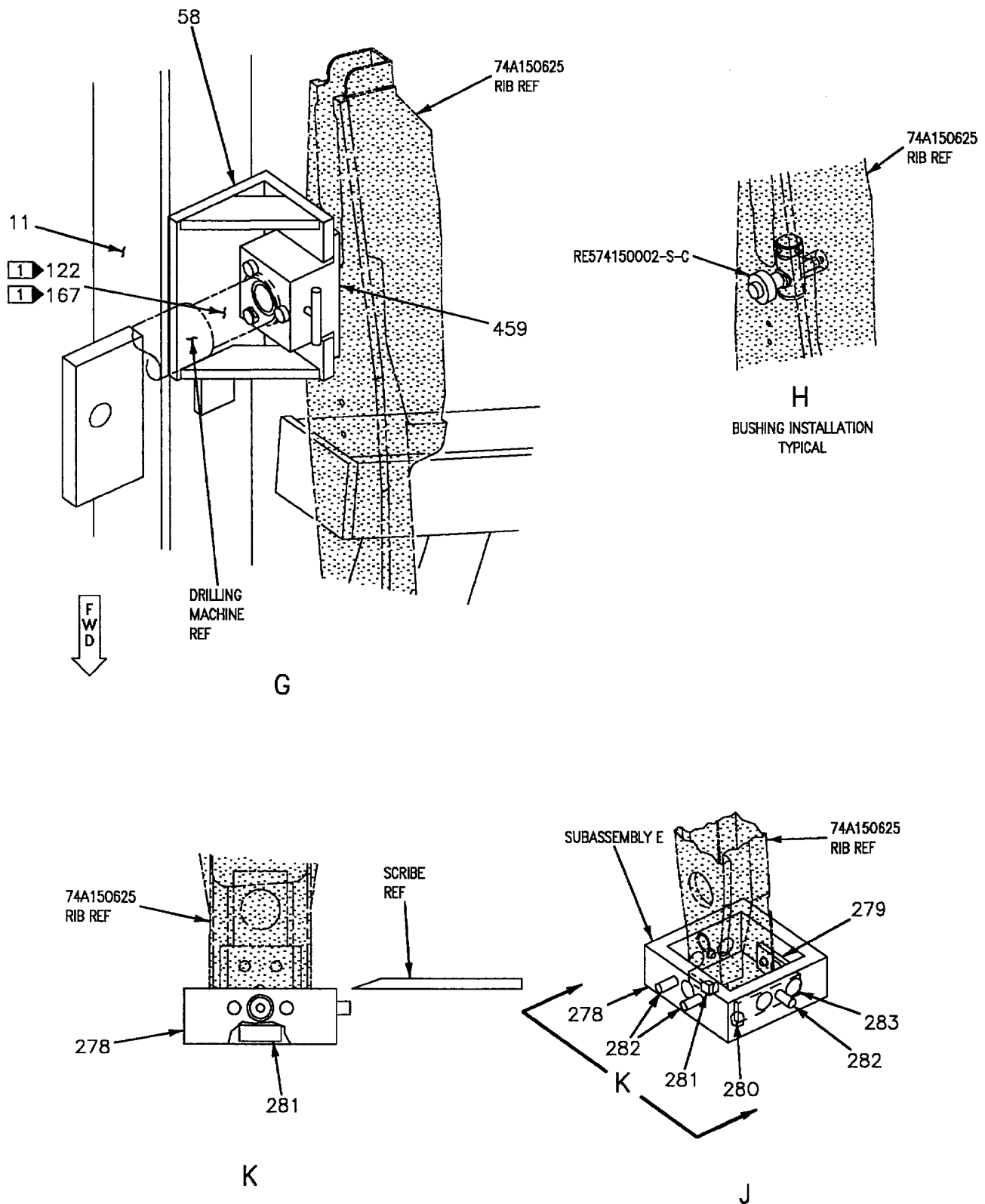


Figure 7. Missile Support Ribs, 74A150625 (Sheet 3)






Detail No.	Name	Function
Subassembly A	Locator	Used to locate holes for wing tip position light.
Subassembly E	Locator - Wing Tip Position Light	Locates holes and trim lines for wing tip position light.
11	Frame	Main fixture assembly.
57	Locator	Locates forward section of missile support rib.
58	Locator	Locates aft section of missile support rib.
79	Locator	Locates missile support rib.
119 	Drill Bushing	Inserts into weld assembly for guiding drill for first oversize hole.
120 	Drill Bushing	Inserts into weld assembly for guiding drill for second oversize hole.
122 	Extension	Used to drill missile rib hole.
137	Block	Attaches detail 196 to frame.
166 	Bushing Tip	Used to drill missile rib hole for first oversize.
167 	Bushing Tip	Used to drill missile rib hole for second oversize.
191	Pin	Locates missile support rib to detail 219 and 220.
206	L-pins	Positions details.
219	Pin	Locates forward tooling hole of missile support rib.
220	Pin	Locates aft tooling hole of missile support rib.
278	Block	Part of subassembly E.
279, 281	Block	Locates forward end of missile support rib.
282	Clamp screws	Secures subassembly A to forward end of missile support rib.
283	Bushings	Used in subassembly A.
400	Socket head cap screw	Secures detail 459 to details 57 and 58.
403	L-pin	Locates detail 459.
404, 463, 464	Block	Locates 0.2500 dimension between missile rib and details.

Figure 7. Missile Support Rib, 74A150625 (Sheet 4)


Detail No.	Name	Function
459	Weld assembly	Locates missile support rib.
465	Spacer	Locates 0.250 dimension between missile support rib and details.
521	Locator	Locates missile support rib for bushing rework/replacement.
522	T-pin	Secures detail 191.
532	Socket head	Secures details 57 and 58.
561	Hand Knob	Secures locator (detail 521) to frame.
577	Thumb screw	Secures missile support rib.
<b>LEGEND</b>		
 Detail of RE574150002-1 Outer Wing Repair Kit.		

Figure 7. Missile Support Rib, 74A150625 (Sheet 5)

26. **INBOARD AILERON SUPPORT.** The paragraphs below locate the inboard aileron support for repair or replacement. See figure 8.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Drilling Machine, Positive Feed	74D110314-1001
Drilling Machine, Positive Feed	74D110314-1009
Hydraulic Cylinder	RCH-202
Repair Kit, Inner Wing	RE874110004-1
Repair Kit, Outer Wing	RE574150002-1

### Materials Required

None

27. **Inboard Aileron Support 74A150821, Inspection.**

a. Position locator (detail 68) on frame (detail 11) and secure using cap screws (detail 446), view A.

b. Inspect the alignment of the inside diameter of bushing with pin (detail 442) or the nominal lug inside diameter with pin (detail 440), view A.

c. To inspect inboard/outboard location:

(1) Attach weld assembly (detail 461) to locator (detail 68) with L-pins (detail 457) and secure with hand knob (detail 359), view B.

(2) Inspect for 0.250 equal gap, view C.

d. To inspect the forward end of inboard aileron support, position locator (detail 12) onto frame (detail 11) using L-pins (detail 209) and secure with cap screws (detail 212), view D.

e. Position angle (detail 490) onto locator (detail 12) and secure with hand knob (detail 565), view D.

f. Adjust socket head screws (detail 468 and 469) until all are firm against aileron support to help support locator (detail 12), view D.

g. Inspect the alignment of the inside diameter of bushing with pin (detail 479), view D.

h. To inspect the inboard/outboard location:

(1) Engage pin (detail 471) through weld assembly (detail 480) and next to the aileron support. Secure using threaded pin (detail 472), views D and E.

(2) Inspect 0.125 gap using subassembly B, view E.

(3) Inspect nominal lug inside diameter with pin (detail 493) when bushings have been removed, view D.

28. **Aileron Hinge, 74A150821, Replacement.**

a. Position locator (detail 68) on frame (detail 11) and secure using cap screws (detail 446), view F.

b. Position weld assembly (detail 461) on locator (detail 68) using L-pins (detail 457) and secure with hand knob (detail 359), view F.

c. Install block (detail 70) onto locator (detail 68), view F.

d. Engage pin (detail 439) through block (detail 70), locator (detail 68), hinge and weld assembly (detail 461), view F.

e. Partly withdraw pin (detail 439).

f. Install new aileron hinge, 74A150821, over tang of weld assembly (detail 461), view F.

g. Insert pin (detail 439) through aft lugs, view F.

h. Push new hinge next to lower surface of existing structure.

i. Engage pin (detail 471) through weld assembly (detail 480) and forward end of aileron support. Secure using threaded pin (detail 472), view F.

j. Hold 0.125 gap between pin (detail 471) and weld assembly (detail 480) and a 0.250 equal gap between weld assembly (detail 461) tang and aft lugs, views C and E.

29. **Inboard Aileron Support Hinge, 74A150821, Bushing Replacement.** Procedures below are for both the aft and forward clevis of the aileron support with differences indicated as required.

a. Locate aileron support on tool.

(1) For aft clevis:

(a) Position locator (detail 68) on frame (detail 11) and secure with cap screws (detail 446), view G.

(b) Attach weld assembly (detail 461) to locator (detail 68) using L-pins (detail 457) and secure with hand knob (detail 359), view G.

(c) Inspect for 0.250 equal gap for inboard/outboard location, view H.

(2) For forward clevis:

(a) Position locator (detail 12) on frame (detail 11) using L-pins (detail 209) and secure with cap screws (detail 212), view G.

(b) Position angle (detail 490) onto locator (detail 12) and secure with hand knob (detail 565), view G.

(c) Adjust socket head screws (details 468 and 469) until all are firm against aileron support to help support locator (detail 12), view G.

(d) Inspect for inboard/outboard location of support by inserting pin (detail 471) through weld assembly (detail 480) and next to the aileron support. Secure using threaded pin (detail 472), view G.

(e) Check for 0.125 gap between pin (detail 471) and weld assembly (detail 480) using subassembly B, view J.

b. Remove bushings from aileron support.

(1) For aft clevis:

(a) Remove bushings from aileron support using SPT14RE574150002TD.

(b) Inspect inside diameter of hole in lug using pin (detail 440), view A. Determine if first oversize or second oversize rework of clevis is required. If satisfactory go to step e.

(2) For forward clevis:

(a) Remove bushings from aileron support using 74D110174.

(b) Inspect inside diameter of bushing hole in lug using pin (detail 493), view D. Determine if first oversize or second oversize rework of clevis is required. If satisfactory go to step e.

c. First oversize rework of aileron support.

(1) For aft clevis:

(a) Ream holes in aileron support using SPT15RE574150002TD, extension (detail 121) of RE5, bushing tip (detail 115) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(b) Hand ream to final size using SPT16RE574150002TD and bushing tip (detail 115) of RE5.

(c) Inspect holes with pin (detail 443), view A. If satisfactory go to step e.

(2) For forward clevis:

(a) Ream holes in aileron support using SPT15RE574150002TD, extension (detail 121) of RE5, bushing tip (detail 115) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(b) Hand ream to final size using SPT16RE574150002TD and bushing tip (detail 115) of RE5.

(c) Inspect holes with pin (detail 494), view D. If satisfactory go to step e.

d. Second oversize rework of aileron support.

(1) For aft clevis:

(a) Ream holes in aileron support using SPT16RE574150002TD, extension (detail 121) of RE5, bushing tip (detail 115) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200 WP004 17).

(b) Remove locator (detail 68) and inspect outboard clevis hole using SPT39RE574150002TD.

(c) Cold work outboard hole using split sleeve TD761G-102135SPL, mandrel SPT38RE574150002TD, RE574150002-S-A with

spacer (detail 114) of RE5, and hydraulic cylinder. For cold work procedures (A1-F18AC-SRM-200, WP004 20).

(d) Inspect outboard hole using hinge:  
SPT2RE874150002TD.

(e) Cold work inboard hole using split sleeve TD761G-102135SPL, mandrel SPT37RE574150002TD, RE574150002-S-A with spacer (detail 172) of RE5, and hydraulic cylinder. For cold work procedures (A1-F18AC-SRM-200, WP004 20).

(f) Inspect inboard hole using  
SPT2RE874150002TD.

(g) Reinstall locator (detail 68) on frame (detail 11).

(h) Ream holes in aileron support using SPT25RE574150002TD, extension (detail 121) of RE5, bushing tip (detail 115) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(i) Hand ream to final size using  
SPT26RE574150002TD.

(j) Inspect holes with pin (detail 541), view A. If satisfactory go to step e.

(k) Ream holes in aileron support using SPT16RE574150002TD, extension (detail 121) of RE5, bushing tip (detail 115) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-200, WP004 17).

(l) Hand ream to final size using  
SPT16RE574150002TD.

(m) Inspect holes with pin (detail 495), view D. If satisfactory go to step e.

e. Install new bushings into aileron support hinge:

(1) For first oversize bushing of aft clevis:

(a) Install first oversize bushing using  
SPT13RE574150002TD.

(b) Final ream bushing using  
SPT13RE574150002TD.

(2) For second oversize bushing of aft clevis:

(a) Install second oversize bushing using  
SPT14RE574150002TD.

(b) Final ream bushing using  
SPT13RE574150002TD.

(3) For first oversize bushing of forward clevis:

(a) Install first oversize bushing using  
74D110174.

(b) Final ream bushing using  
SPT36RE574150002TD.

(4) For second oversize bushing of forward clevis:

(a) Install second oversize bushing using  
74D110174.

(b) Final ream bushing using  
SPT36RE574150002TD.

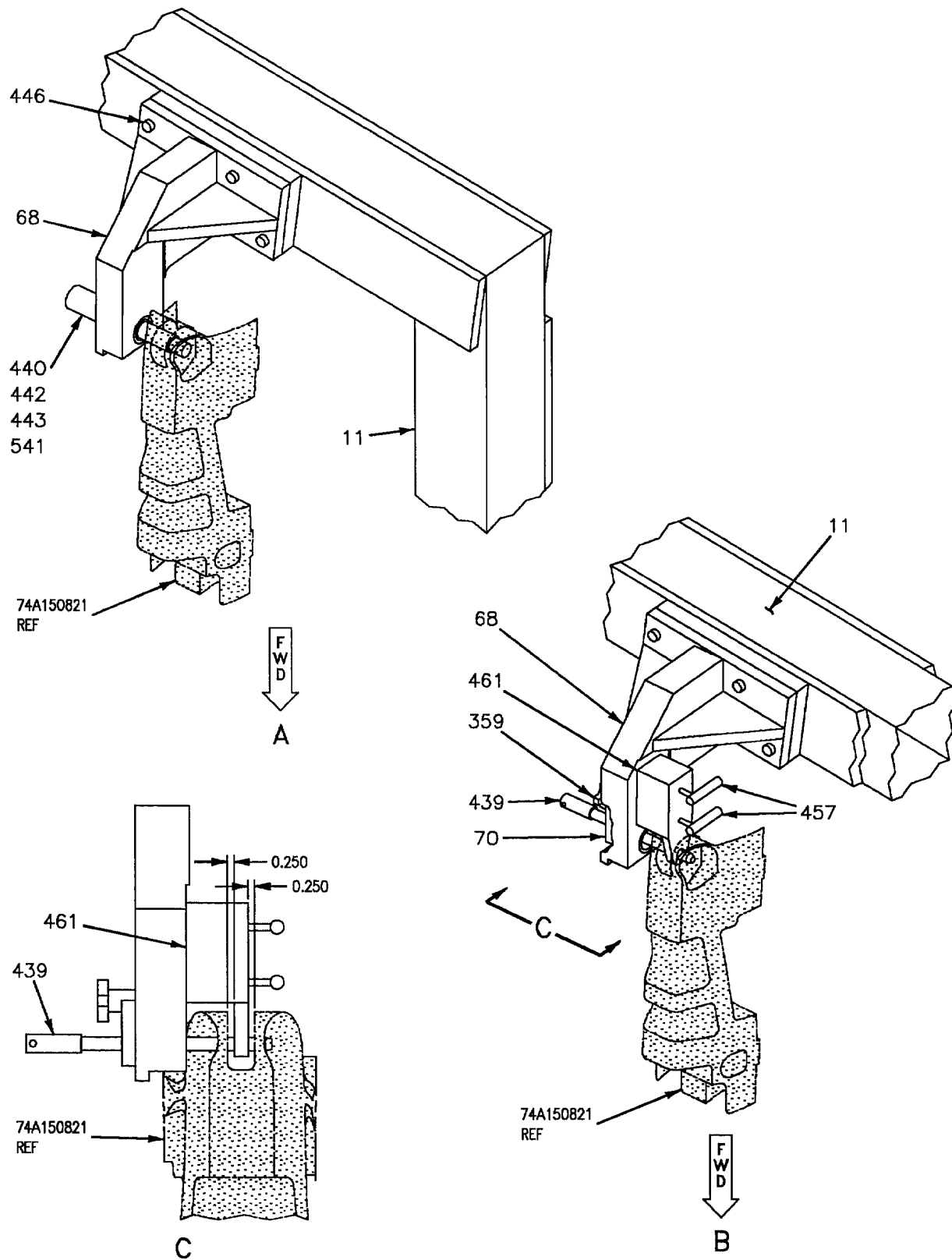


Figure 8. Inboard Aileron Support, 74A150821 (Sheet 1)

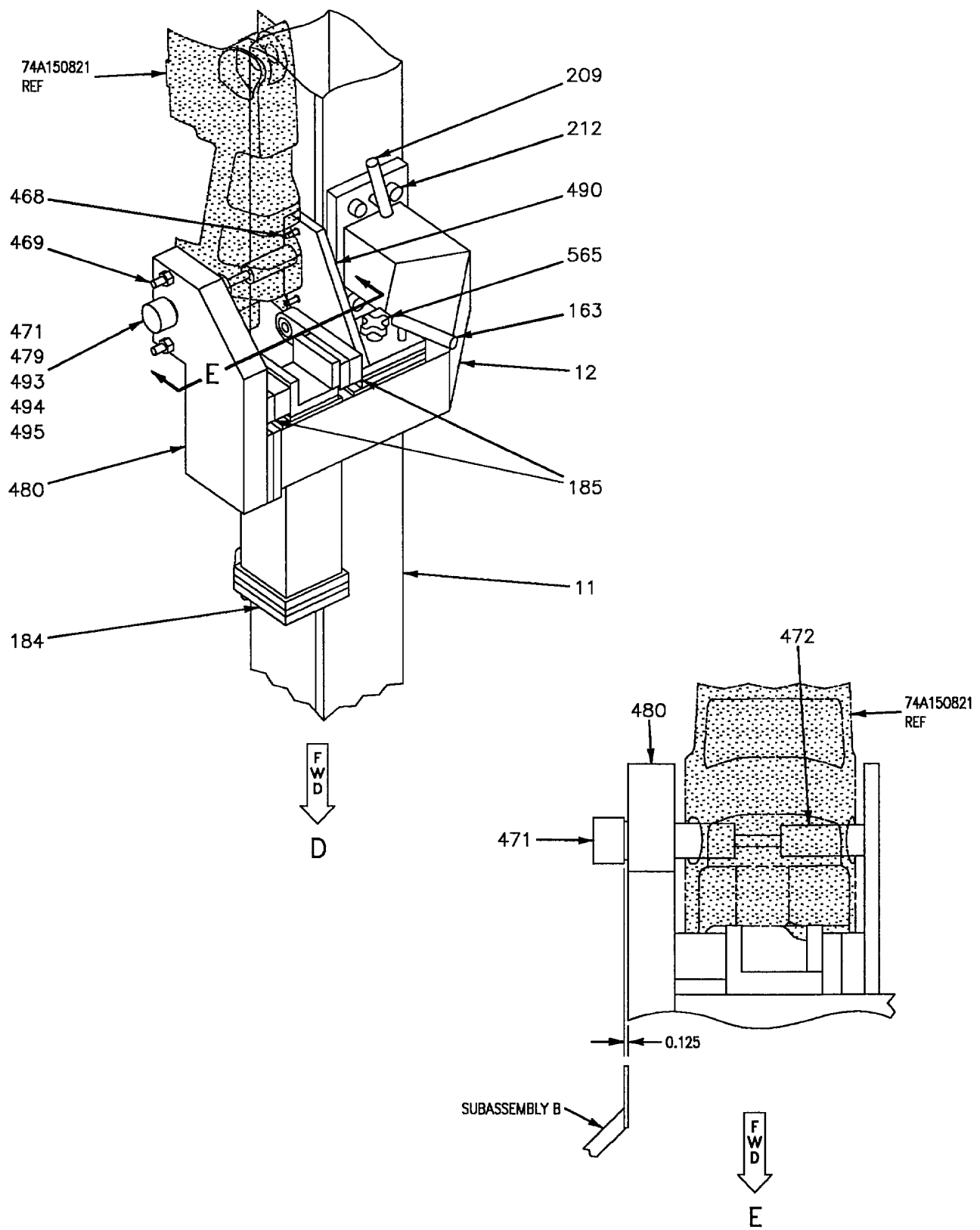


Figure 8. Inboard Aileron Support, 74A150821 (Sheet 2)





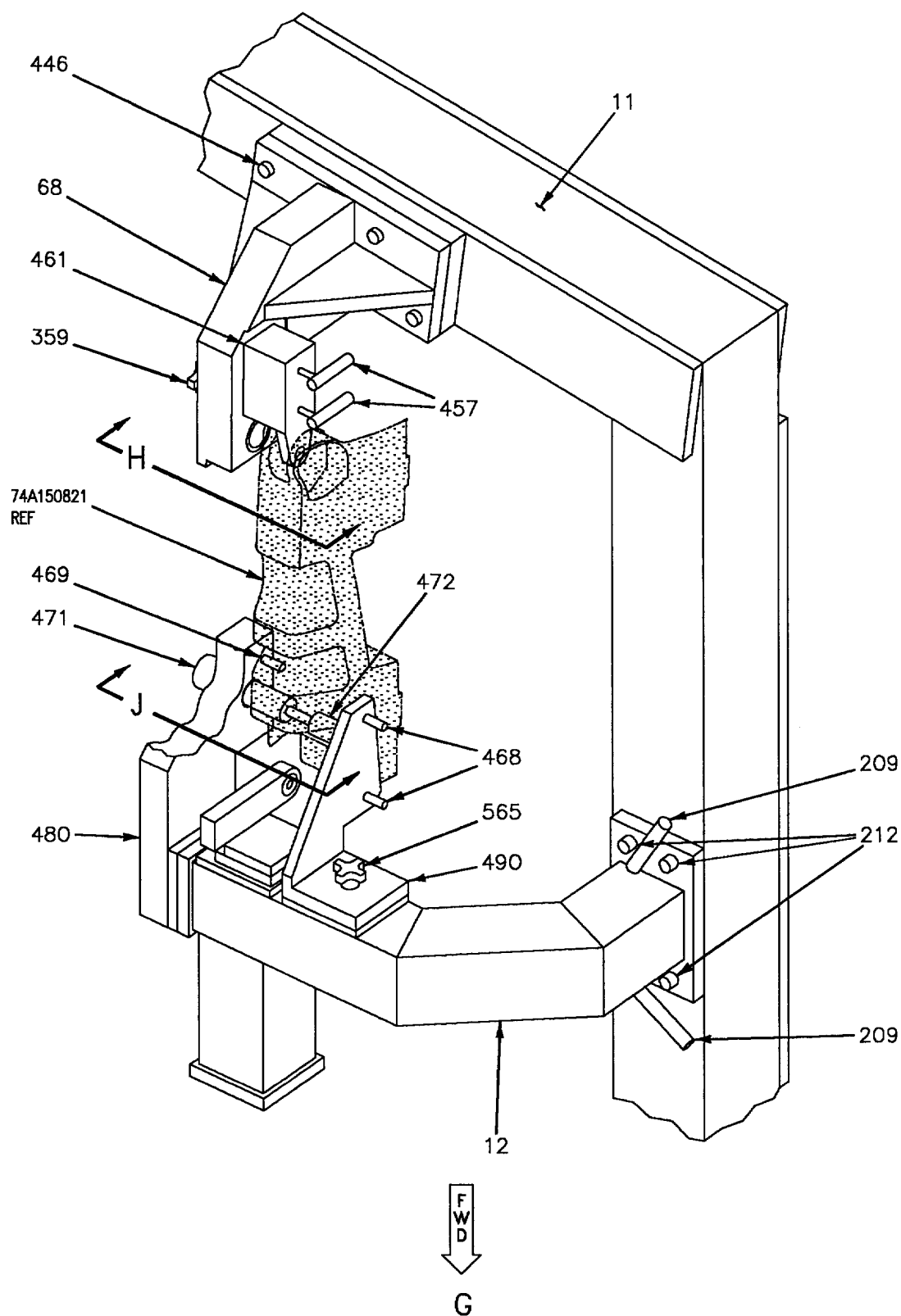
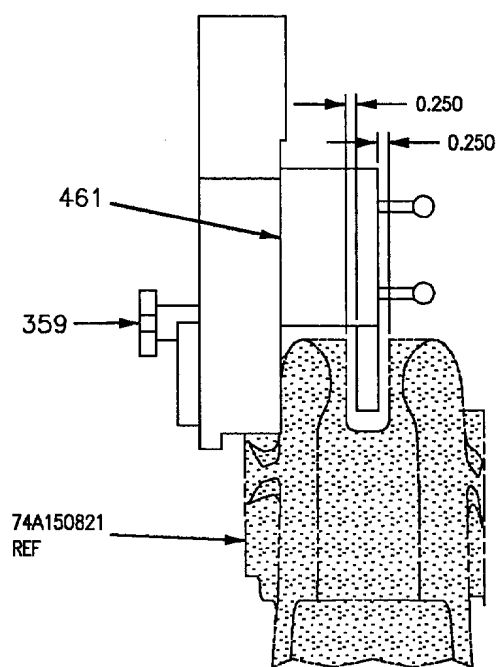
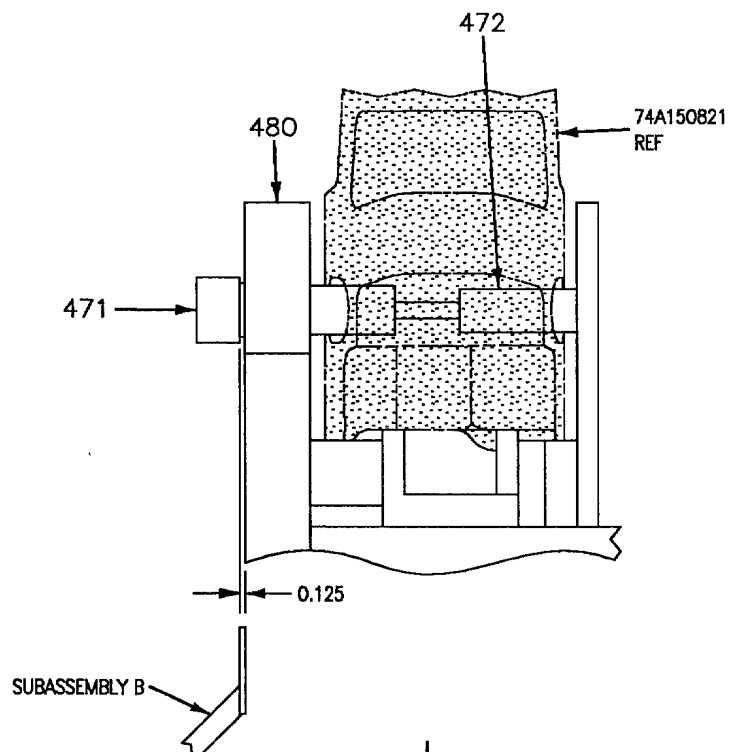


Figure 8. Inboard Aileron Support, 74A150821 (Sheet 4)



H



J

Figure 8. Inboard Aileron Support, 74A150821 (Sheet 5)




Detail No.	Name	Function
11	Frame	Main frame assembly.
12	Locator	Locates forward end of aileron support.
68	Locator	Locates inboard aileron support.
70	Block	Used with detail 439 and detail 68.
114 	Spacer	Used to cold work the bushing hole of the aileron support.
115 	Bushing Tip	Used in reaming the bushing hole of the aileron support.
121 	Extension	Used in reaming the bushing hole of the aileron support.
130	Hand knob	Secures detail 490.
209	L-pins	Attaches forward end of aileron support.
212	Cap screws	Secures forward end of aileron support.
359	Hand knob	Secures detail 461 to detail 68.
431	Bullet nose dowels	Locates detail 68 on detail 11.
439	Pin	Locates aileron support.
440	Pin	Used to inspect nominal inside diameter of lugs in aileron support.
442	Pin	Used to inspect inside diameter of aileron support bushing.
443	Pin	Used to inspect the first oversize diameter of the aileron support bushing holes.
446	Cap screws	Secures detail 68 to detail 11.
457	L-pins	Attaches detail 461 to detail 68.
461	Weld assembly	Used to inspect inboard/outboard location of aileron support.
468, 469	Socket head screws	Snugs details to forward aileron support.
471	Pin	Used to inspect inboard/outboard location of aileron support.
472	Threaded pin	Positions detail 471.
479	Pin	Used to inspect inside diameter of bushing.
480	Welded assembly	Locates inboard aileron support.

Figure 8. Inboard Aileron Support, 74A150821 (Sheet 6)


Detail No.	Name	Function
490	Angle	Part of detail 12.
493	Pin	Used to inspect nominal inside diameter of aileron support lugs.
494	Pin	Used to inspect first oversize diameter of the aileron support bushing holes.
495	Pin	Used to inspect second oversize diameter of the aileron support bushing holes.
541	Pin	Used to inspect second oversize diameter of the aileron support bushing holes.
565	Hand knob	Secures detail 490
LEGEND		
 Detail of RE574150002TD Outer Wing Repair Kit.		

Figure 8. Inboard Aileron Support, 74A150821 (Sheet 7)

30. **OUTBOARD AILERON HINGE.** The paragraphs below locate the outboard aileron hinge for repair or replacement. See figure 9.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Drilling Machine, Positive Feed	74D110314-1001
Drilling Machine, Positive Feed	74D110314-1009
Repair Kit, Outer Wing	RE574150002-1

### Materials Required

None

### 31. Outboard Aileron Hinge, 74A150830, Bushing Inspection.

a. Position locator (detail 69) on frame (detail 11) and secure with cap screws (detail 446), view A.

b. Position weld assembly (detail 355) on locator (detail 69) with L-pins (detail 457) and secure with hand knob (detail 359), view A.

c. To inspect for inboard/outboard location, insert pin (detail 505) into locator (detail 69), hinge bushing, and weld assembly (detail 355), view A.

d. Inspect 0.062 equal gap, view B.

### 32. Outboard Aileron Hinge, 74A150830, Rework.

a. Remove bushings from aileron hinge using 74A110174 Tool Set, view C.

b. Measure and record outside diameter of removed bushing to determine requirements for first or second oversize replacement bushings.

c. For first oversize bushing replacement:

(1) Ream aileron hinge bushing hole using SPT2RE574150002TD, extension (detail 123) of RE5, bushing tip (detail 117) of RE5, and 74D110314-1001 or

-1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17), view D.

(2) Hand ream bushing to final size using bushing tip (detail 118), of RE5, and SPT3RE574150002TD for outboard bushing hole, or SPT23RE574150002TD for inboard hole, view D.

(3) Inspect bushing hole of aileron hinge using pin (detail 475), view E. If satisfactory go to step e.

d. For second oversize bushing replacement:

(1) Ream aileron hinge bushing hole using SPT4RE574150002TD, extension (detail 123) of RE5, bushing tip (detail 117), of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, W0004 17), view D.

(2) Hand ream bushing to final size using bushing tip (detail 118) of RE5, and SPT5RE574150002TD for outboard hole, or SPT24RE574150002TD for inboard hole, view D.

(3) Inspect bushing hole of aileron hinge using pin (detail 476), view E. If satisfactory go to step e.

(4) Install replacement bushings using 74D110174 Tool Set, view C.

(5) Ream inside diameter of inboard bushing with SPT8RE574150002TD, view D.

### 33. Outboard Aileron Hinge, 74A150830, Replacement.

a. Position locator (detail 69) on frame (detail 11) and secure with cap screws (details 446), view F.

b. Position weld assembly (detail 355) on locator (detail 69) with L-pin (detail 457) and secure with hand knob (detail 359), view F.

c. Rough position replacement hinge.

d. Attach weld assembly (detail 59) onto locator (detail 69), view F.

e. Attach block (detail 71) to locator (detail 69), view F.

f. Insert pin (detail 445) through block (detail 71), locator (detail 69) and replacement hinge, view F.

g. Insert pin (detail 478) through weld assembly (detail 59), view F.

h. Allow hinge to float next to mold line and next to pin (detail 478). Gage 0.187 equal space and clamp for drilling, view G.

i. Install hinge half.

## 34. Outboard Aileron Hinge, 74A150830, Nominal Bushing Installation.

a. Bore bushing holes of aileron hinge using SPT6RE574150002TD, view D.

b. Do first reaming of aileron hinge bushing holes using SPT7RE574150002TD, extension (detail 123) of RE5, bushing tip (detail 118) of RE5, and 74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17), view D.

c. Do second reaming of aileron hinge bushing holes using SPT8RE574150002TD, extension (detail 123) of RE5, bushing tip (detail 118) of RE5, and

74D110314-1001 or -1009 drilling machine. For drilling machine information (A1-F18AC-SRM-200, WP004 17), view D.

d. Hand ream bushing hole to final size using bushing tip (detail 118) of RE5, and SPT-RE574150002TD, view D.

e. Inspect hole using pin (detail 474), view E.

f. Install replacement bushing using 74D110174 Tool Set, view C.

g. Inspect pressed in bushings using pin (detail 477), view H.

h. Ream inside diameter of inboard bushing using SPT8RE574150002TD, and bushing tip (detail 118) of RE5.

i. Inspect bushing inside diameter using pin (detail 505) after third bushing is slipped into place, view J.

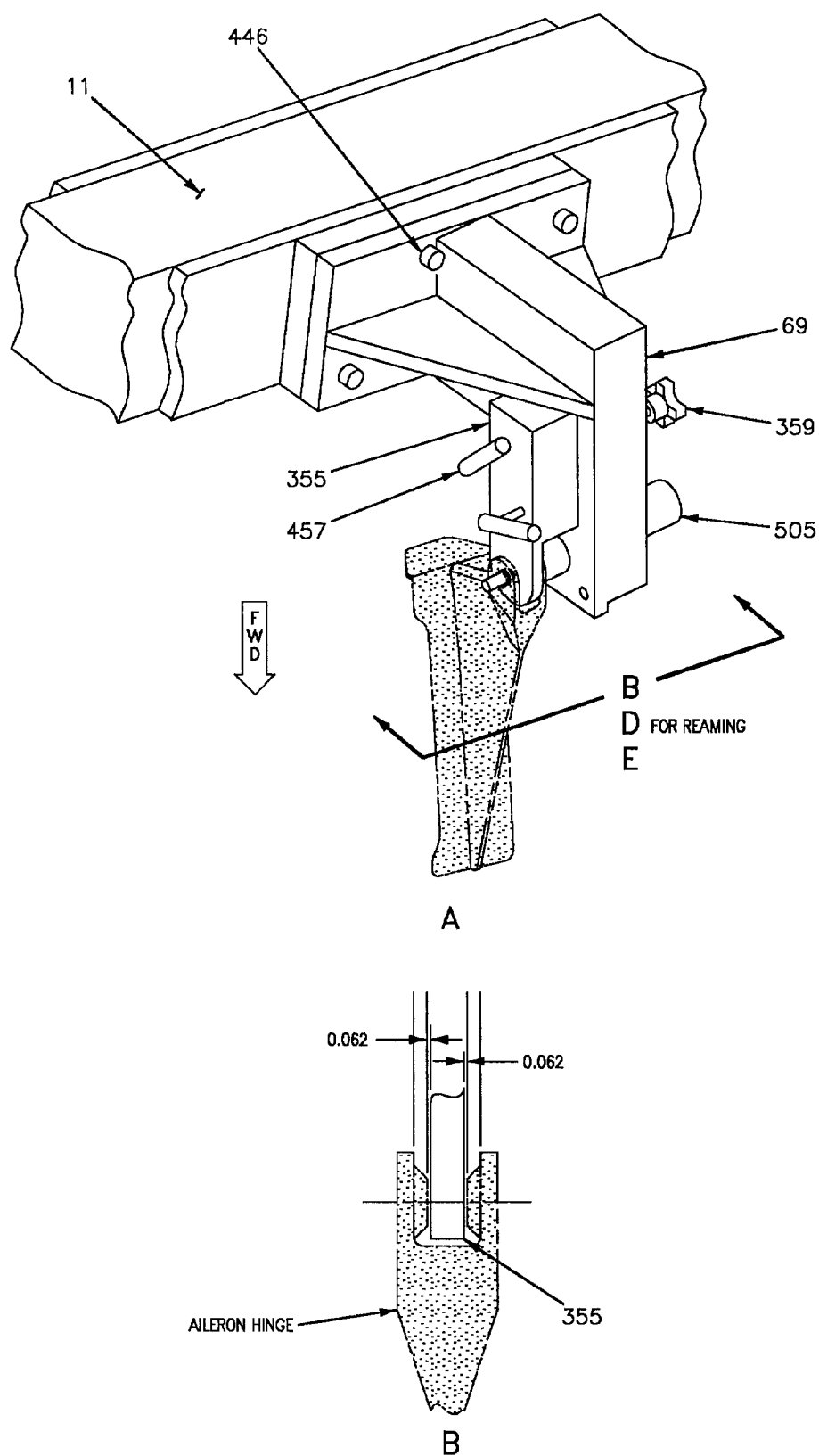
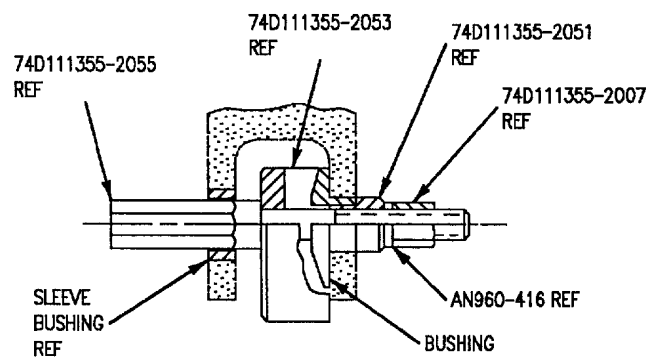
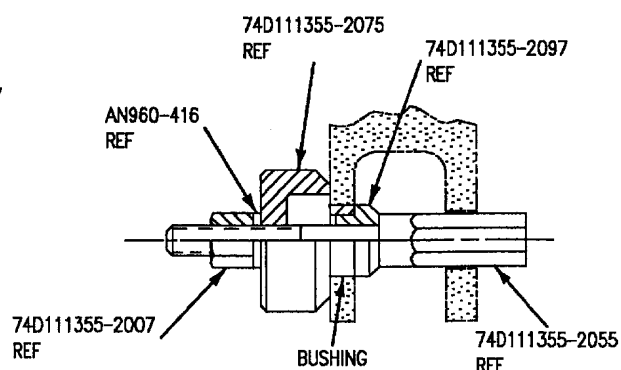


Figure 9. Outboard Aileron Hinge, 74A150830 (Sheet 1)

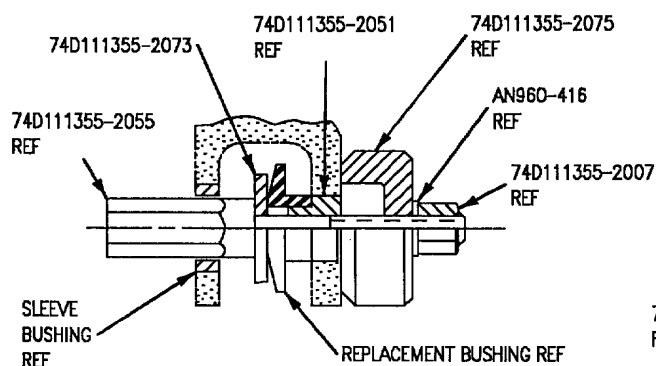




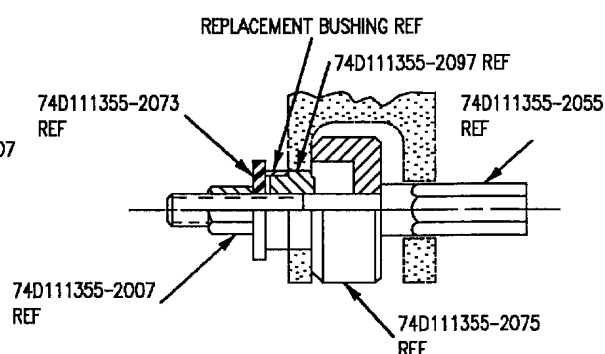
REMOVAL - FLANGE BUSHING



REMOVAL - SLEEVE BUSHING



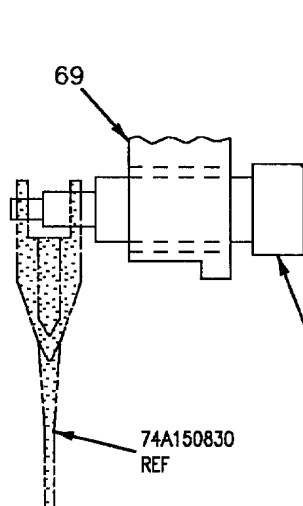
INSTALLATION - FLANGE BUSHING



INSTALLATION - SLEEVE BUSHING

C

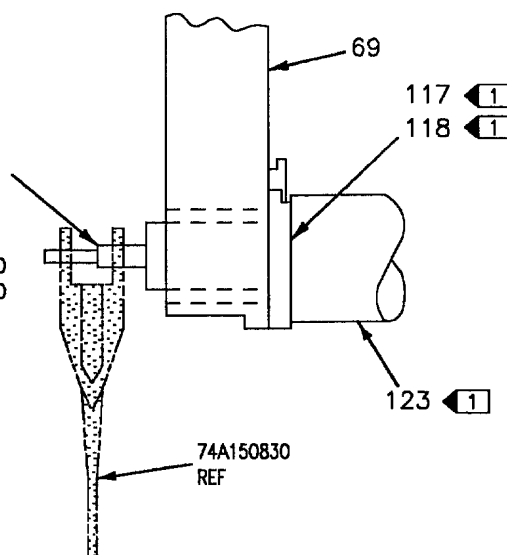
SET-UP FOR BUSHING REMOVAL OR INSTALLATION  
ALL PARTS ARE DETAILS OF THE 74D110174 TOOL SET.



E

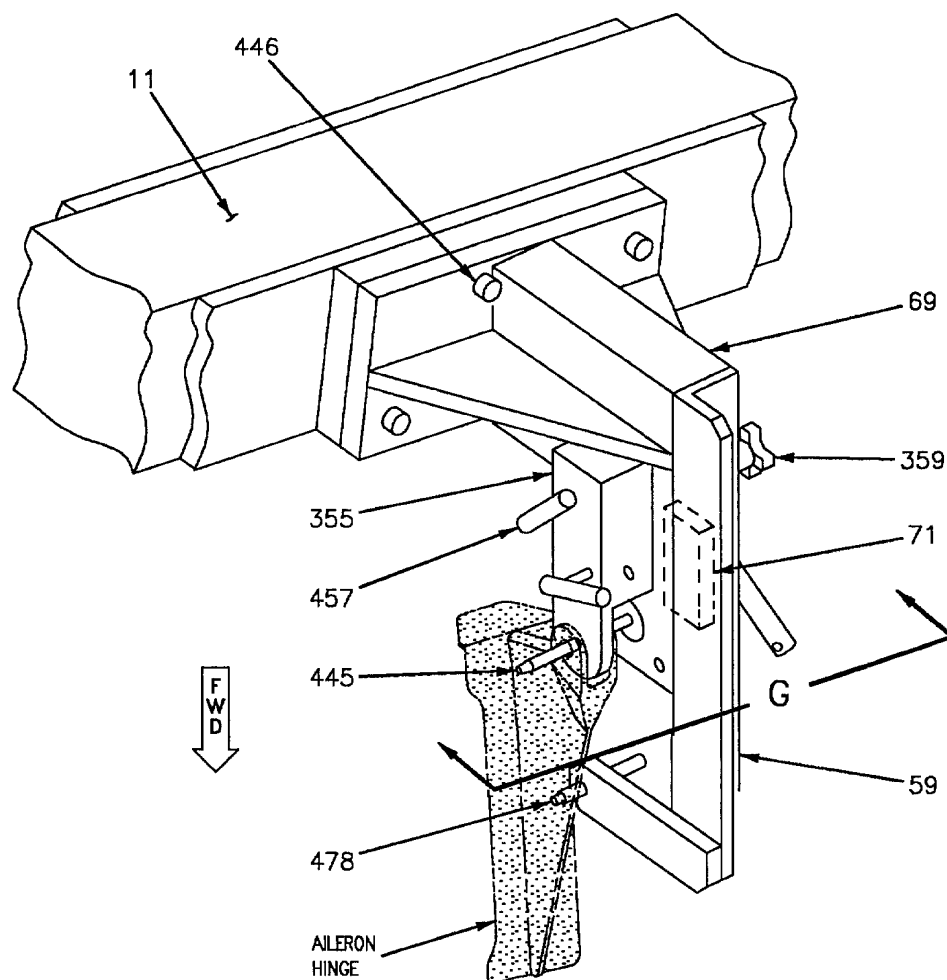
SPT-RE574150002TD  
SPT2-RE574150002TD  
SPT3-RE574150002TD  
SPT4-RE574150002TD  
SPT5-RE574150002TD  
SPT6-RE574150002TD  
SPT7-RE574150002TD  
SPT8-RE574150002TD  
SPT23-RE574150002TD  
SPT24-RE574150002TD

474 (NOMINAL)  
475 (FIRST OVERSIZE)  
476 (SECOND OVERSIZE)

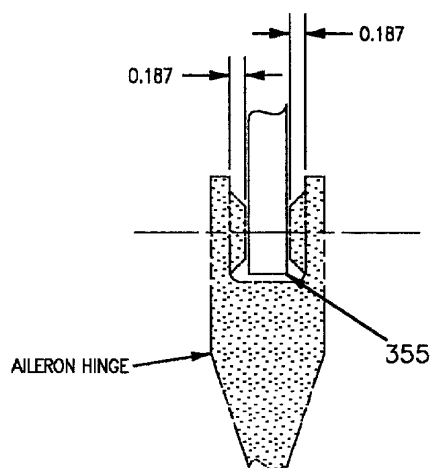


D

Figure 9. Outboard Aileron Hinge, 74A150830 (Sheet 2)

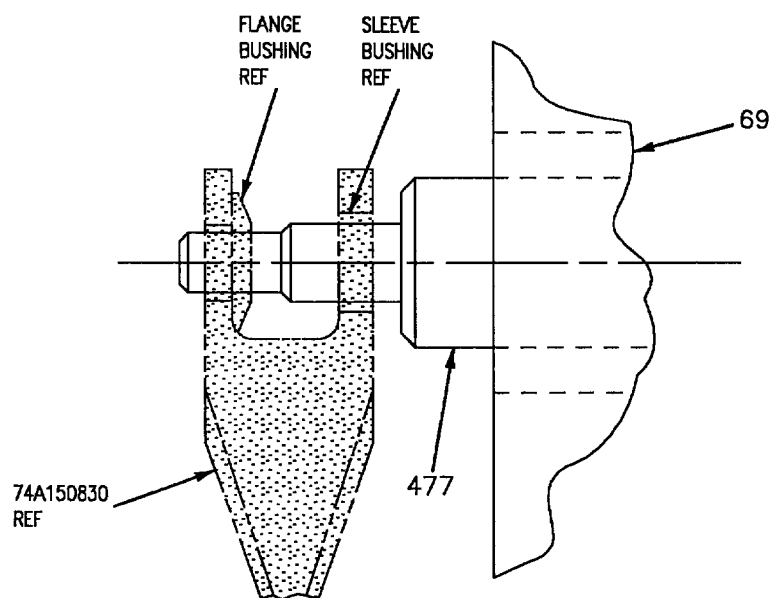


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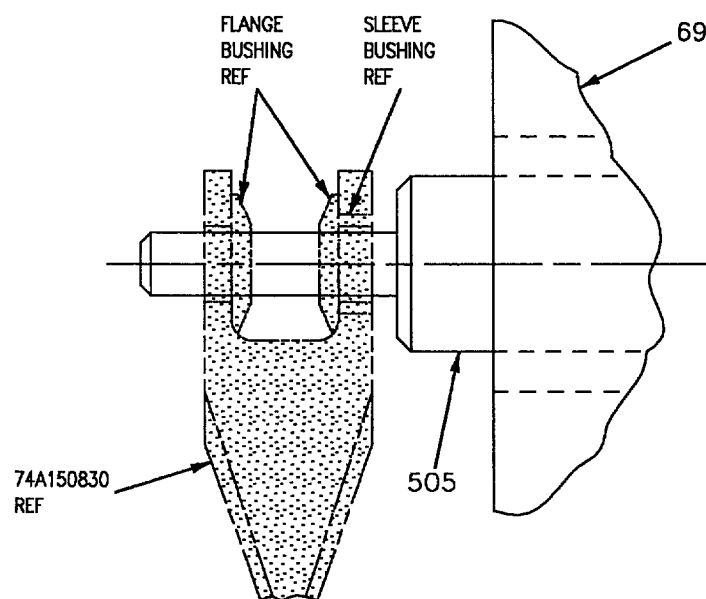


G

Figure 9. Outboard Aileron Hinge, 74A150830 (Sheet 3)



H



J

Figure 9. Outboard Aileron Hinge, 74A150830 (Sheet 4)




Detail No.	Name	Function
11	Frame	Main frame assembly.
59	Weld assembly	Locates outboard aileron hinge.
69	Locator	Locates outboard aileron hinge.
71	Block	Attaches to detail 69.
117 	Bushing Tip	Used in reaming the bushing hole of the aileron support.
118 	Bushing Tip	Used in reaming the bushing hole of the aileron support.
123	Extension	Used in reaming the bushing hole of the aileron support.
355	Weld assembly	Locates outboard aileron hinge.
359	Hand knob	Secures detail 355.
431	Bullet nose dowel	Locate detail 69 onto detail 11.
445	Pin	Aligns hinge.
446	Cap screws	Secures detail 69.
457	L-pins	Positions detail 355.
474	Pin	Used to inspect hinge.
475	Pin	Used to inspect hinge.
476	Pin	Used to inspect hinge.
477	Pin	Used to inspect hinge.
478	Pin	Used to locate aileron hinge to detail 69.
505	Pin	Used to inspect inboard/outboard location of hinge.
<b>LEGEND</b>		
 Detail of RE574150002TD Outer Wing Repair Kit.		

Figure 9. Outboard Aileron Hinge, 74A150830 (Sheet 5)

35. AILERON SHROUD HINGES AND BUSHINGS. See figure 10.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001
Repair Kit, Outer Wing	RE574150002-1

### Materials Required

None

36. Aileron Shroud Hinges, 74A150811, 74A150828, 74A150829, 74A150831 and 74A150833, Locating. Procedures below are for locating the shroud hinges of the 74A150810 aft spar for repair or replacement.

a. Install locators (details 125 thru 129) on frame (detail 11), using L-pins (detail 163) and secure with hand knobs (detail 565), view A.

b. 74A150810 aft spar is located on tool by maintaining a 0.125 gap between the spar and locator (detail 396) and locator (detail 456).

c. Engage pin (detail 391) through drill bushing (detail 141), locator, and hinge bushing, view B.

d. Inspect for gap of 0.125 between locator (details 125 thru 129) and hinge using subassembly B, view B.

37. Aileron Shroud Hinges, 74A150811, 74A150828, 74A150829, 74A150831 and 74A150833, Rework. Procedures below are for the rework of the hinge fittings for first and second oversize bushing replacement.

a. Remove bushings from hinges. Removal of bushings is typical for all hinges.

(1) Remove locator (details 125 thru 129) from frame (detail 11), view A.

(2) Remove bushing from hinge using 74D110174 Tool Set.

(3) Measure and record outside diameter of removed damaged bushing to determine requirement for first or second oversize replacement bushing.

(4) Reinstall locator (details 125 thru 129) on frame (detail 11) before proceeding with rework, view A.

b. For first oversize replacement bushing. Rework of bushing holes is typical for all hinges.

(1) Ream bushing hole in hinge using drill bushing (detail 542) and SPT32RE574150002TD, view C.

(2) Hand ream bushing hole to final size using drill bushing (detail 512), and SPT33RE574150002TD, view C.

c. For second oversize replacement bushing Rework of bushing holes is typical for all hinges.

(1) Ream bushing hole in hinge using drill bushing (detail 543) and SPT34RE574150002TD, view C.

(2) Hand ream bushing hole to final size using drill bushing (detail 513), and SPT35RE574150002TD, view C.

d. Remove locator (details 125 thru 129) and install new bushing using 74D110174 Tool Set.

e. Reinstall locator (details 125 thru 129) and inspect replacement bushing by inserting pin (detail 391) through drill bushing (detail 141) and locator (details 125 thru 129), view B.

38. Aileron Shroud Hinges, 74A150811, 74A150828, 74A150829, 74A150831 and 74A150833, Replacement. Procedures below are for the replacement of the hinge fittings, and the preparation of fittings for nominal bushing installation. Replacement of hinges on 74A150810 aft spar is typical for all locations.

a. Remove damaged hinge fitting from aft spar.

b. Locate new hinge fitting on aft spar by inserting pin (detail 422) through hinge fitting, spacer (detail 395), locator (details 125 thru 129), drill bushing (detail 438) and secure with knurled nut (detail 423), view D.

c. Secure hinge fitting to aft spar.

d. Remove knurled nut (detail 423), pin (detail 422) and spacer (detail 395) from locator (details 125 thru 129) and hinge fitting, view D.

e. Locate drill bushing (detail 424) onto locator (details 125 thru 129), view C. Hand drill hole in hinge fitting using SPT17RE574150002TD, view C.

f. Remove drill bushing (detail 424) and replace with drill bushing (detail 544), view C.

g. Ream hole using SPT18RE5741500052TD, view C.

h. Remove drill bushing (detail 544) and replace with drill bushing (detail 425), view C.

i. Hand ream bushing hole to final size using SPT20RE574150002TD, view C.

j. Remove locator (details 125 thru 129) from frame (detail 11), view A.

k. Install replacement nominal size bushing into hinge fitting using 74D110174 Tool Set.

l. Reinstall locator (details 125 thru 129) onto frame (detail 11), view A.

m. Inspect replacement bushing by inserting pin (detail 391) through drill bushing (detail 141), and locator (details 125 thru 129), view B.

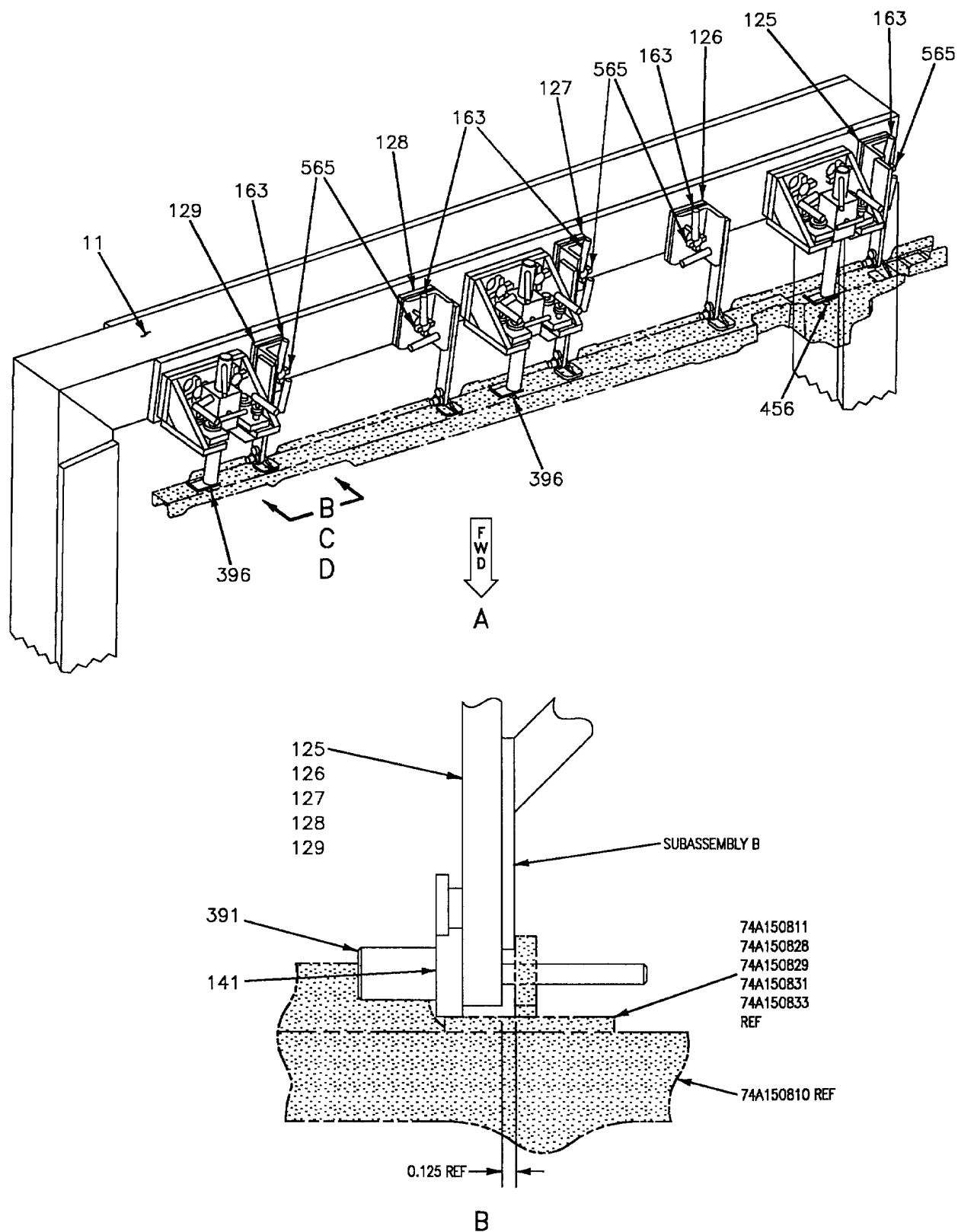
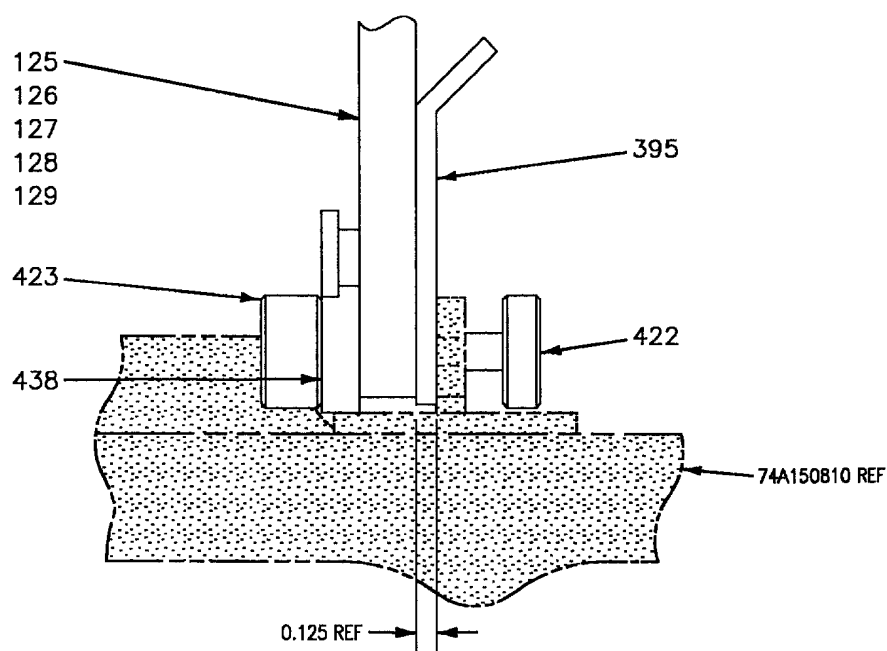
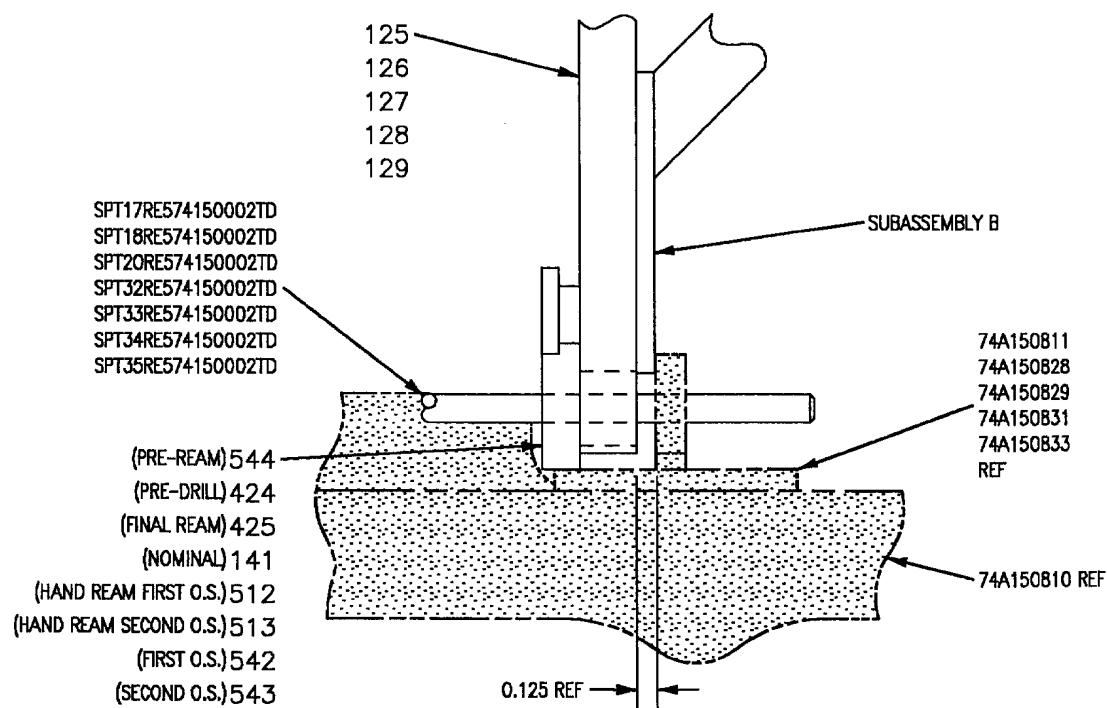


Figure 10. Aileron Shroud Hinges (Sheet 1)



**Figure 10. Aileron Shroud Hinges (Sheet 2)**



Detail No.	Name	Function
Subassembly B	Locator	Used to inspect gap for bushing location.
11	Frame	Main frame assembly.
125, 126, 127, 128, 129	Locators	Locates aileron shroud hinges and bushings.
141	Bushing	Part of details 125 thru 129.
163	L-pins	Positions details 125 thru 129.
391	Pin	Positions aileron shroud hinges and bushings.
395	Spacer	Used in locating the replacement hinge fitting to aft spar.
396	Locator	Locates aft spar to tool.
422	Pin	Locates replacement hinge fitting.
423	Knurled Nut	Secures replacement hinge in place on locator.
424	Drill Bushing	Used in reaming bushing hole.
425	Drill Bushing	Used in reaming bushing hole.
438	Drill Bushing	Locates replacement hinge fitting on locator.
456	Locator	Locates aft spar to tool.
512	Drill Bushing	Used in first oversize final ream.
513	Drill Bushing	Used in second oversize final ream.
542	Drill Bushing	Used in first oversize final ream.
543	Drill Bushing	Used in second oversize final ream.
544	Drill Bushing	Used in nominal bushing reaming.
560	Hand knob	Secures detail 125.
565	Hand knob	Secures details 126 thru 129.

Figure 10. Aileron Shroud Hinges (Sheet 3)

39. AILERON SHROUD SEALS, UPPER AND LOWER, LOCATE AND ATTACH. See figure 11.

### Support Equipment Required

None

### Materials Required

None

a. Clear all removable details from along the aft spar.

b. Position subassembly F at aft spar so that locators (details 300 and 301) are located between lugs of 74A150821 and 74A150830, views A, B, and C.

c. Insert pin (detail 449) through aileron support 74A150821, and locator (detail 300), view C.

d. Insert pin (detail 320) through aileron hinge, 74A150830, and locator (detail 301), view B.

e. Rotate subassembly F until locator (detail 47), two places, and locator (detail 46) contact aft surface of spar, 74A150810, view A.

f. Clamp subassembly F to spar, using clamp (detail 49), two places, through outboard (detail 47) and inboard locator (detail 46), and clamp (detail 76) through center locator (detail 47), engaging tool holes of spar. Tighten clamps, view D.

g. To locate upper seals:

(1) Position plate (detail 314) on subassembly F and secure using hand knobs (detail 326), four places, view A.

(2) For forward/aft direction, locate all upper seals next to plate (detail 314), view A.

(3) For inboard/outboard direction, locate upper seals:

(a) Position seals, 74A150835-2027, and 74A150852-2001 against locator (detail 315), view A.

(b) Position seal, 74A150852-2001 against locator (detail 316), view A.

(c) Position seals, 74A150835-2029, 74A150835-2031, 74A150835-2033, 74A150835-2035, 74A150852-2003, 74A150852-2005, 74A150852-2007, and 74A150852-2009 against locator (detail 313), view A.

(d) Clamp seals in place.

h. Remove hand knob (detail 326). Remove plate (detail 314).

i. To locate lower aileron seals:

(1) Position locators (details 304 thru 311) onto frame (detail 45) and secure with hand knobs (detail 130), six places, view E.

(2) For forward/aft direction, locate seals against locators (details 304 thru 309), view E.

(3) For inboard direction, locate lower seals:

(a) Position seal, 74A150822-2001 against locator (detail 325), view E.

(b) Position seal, 74A150822-2015 against locators (details 310 and 311) against locator (detail 329) for up/down location, view E.

(c) Position seal, 74A150822-2011 against aileron support fairing, 74A150823, view E.

(d) Position seal, 74A150822-2013 by equal spaces between 74A150822-2011 seal and 74A150822-2015 seal, view E.

### NOTE

Do steps below before removing any lower seal locators from tool.

j. Remove clamps (detail 49 and 76) from spar and locators (details 46 and 47), view A.

k. Remove pin (detail 449) from locator (detail 300) and aileron support, 74A150821, view C.

l. Remove pin (detail 320) from locator (detail 301) and 74A150830, view B.

m. Disengage subassembly F by lifting away from spar before removing any lower seal locators from tool.

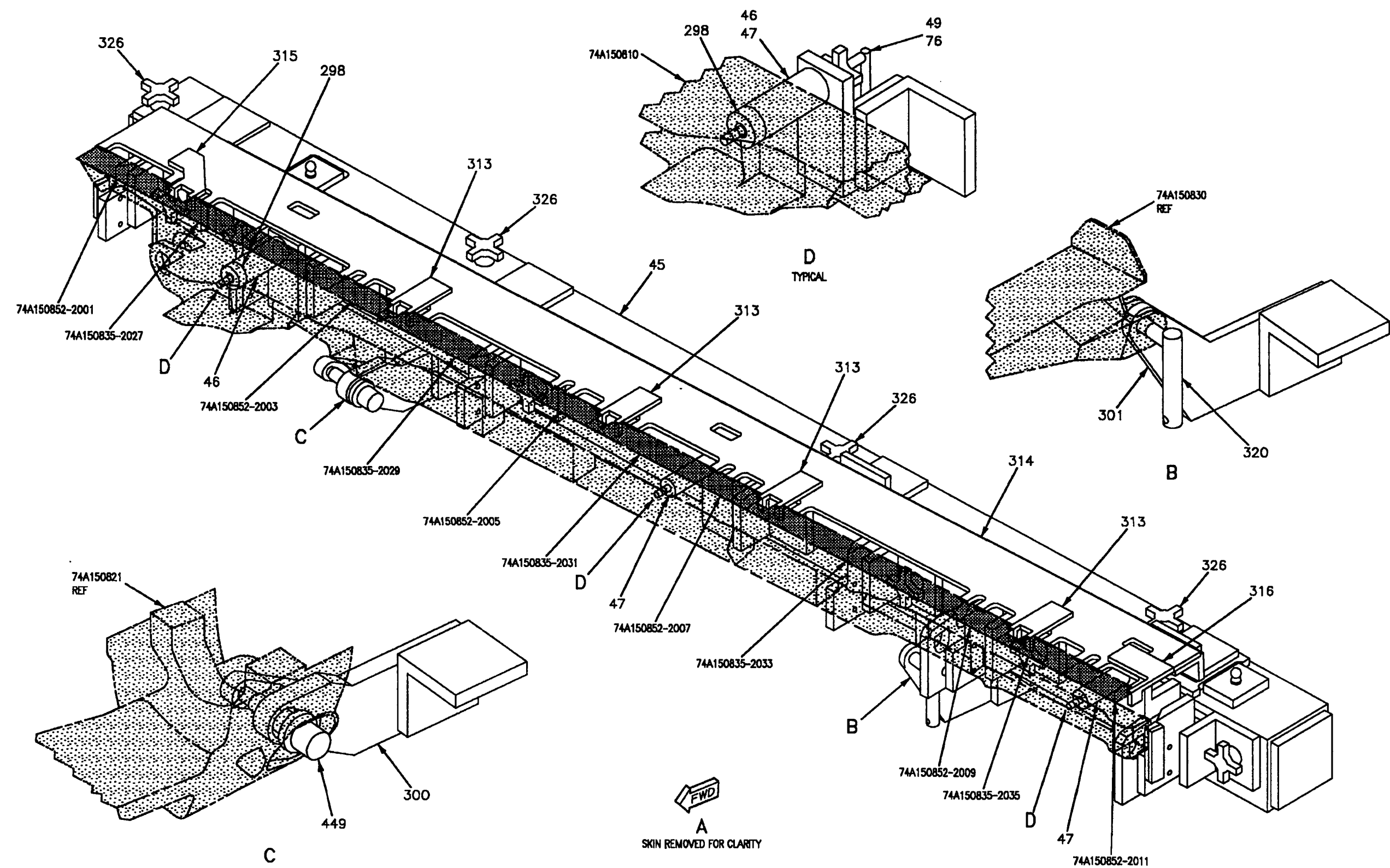


Figure 11. Aileron Shroud Seals (Sheet 1)

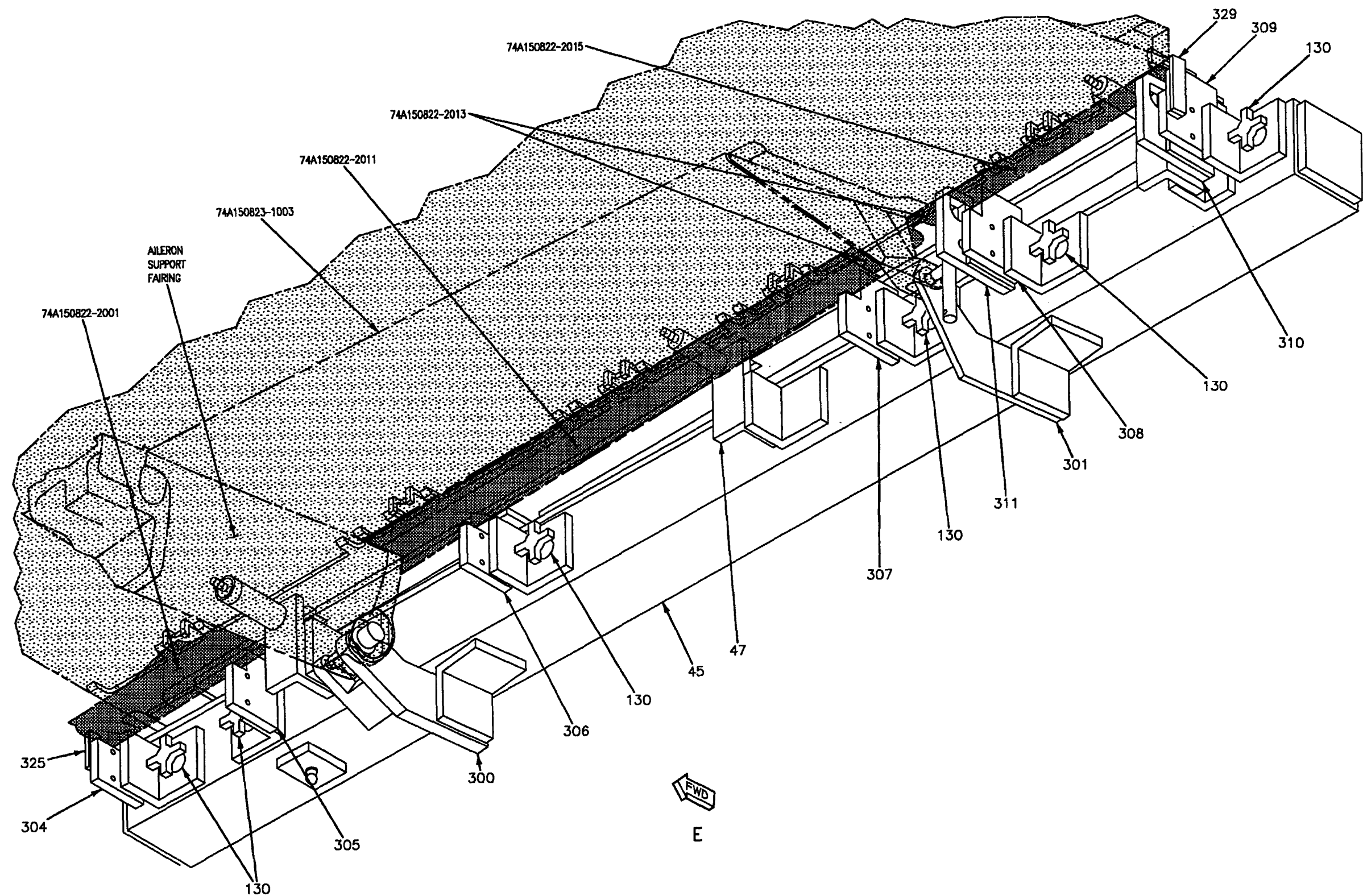


Figure 11. Aileron Shroud Seals (Sheet 2)

Detail No.	Name	Function
45	Frame	Part of subassembly F.
46	Welded assembly	Used to support detail 47.
47	Welded assembly	Used to locate subassembly F net to 74A150810.
49, 76	Clamp	Secures subassembly F to 74A150810.
130	Hand knobs	Secures details 304, 305, 306, 307, 308, 309, 310, and 311.
300, 301	Locator	Locates aileron support lugs.
304, 305, 306, 307, 308, 309, 310, 311	Locator	Locates lower aileron seals.
313, 315, 316	Locator	Locates inboard/outboard direction of seals.
314	Plate	Used to locate upper aileron seals.
320	Pin	Secures aileron hinge to detail 301.
324	Bullet nose dowel	Used to locate detail 314
325	Block	Locates lower seals for inboard direction.
326	Hand knob	Secures detail 314.
329	Locator	Locates 74A150822-2015 seal.
449	Pin	Secures aileron support lugs to detail 300.

Figure 11. Aileron Shroud Seals (Sheet 3)

40. LEADING EDGE FLAP HINGE HALF ASSEMBLIES, 74A150678, 74A150679, INSPECTION. See figure 12.

## Support Equipment Required

None

## Materials Required

None

a. Position locator (details 55) onto frame (detail 11) using L-pins (detail 206) and secure with hand knobs (detail 561), view A.

b. Position locator (details 56) onto frame (detail 11) using L-pins (detail 206) and secure with hand knobs (detail 562), view A.

c. Inspect location of hinge half assemblies:

(1) Insert pin (detail 296) through hinge half and fully into locators (detail 55 and 56), view A.

(2) Inspect 0.125 inch gap between hinge half and locators (detail 55 and 56) using subassembly B, views B and C.

d. Replacement of 74A150678 or 74A150697 hinge half assemblies or bushings installed in them requires depot tool RE774150002 (WP012 03).

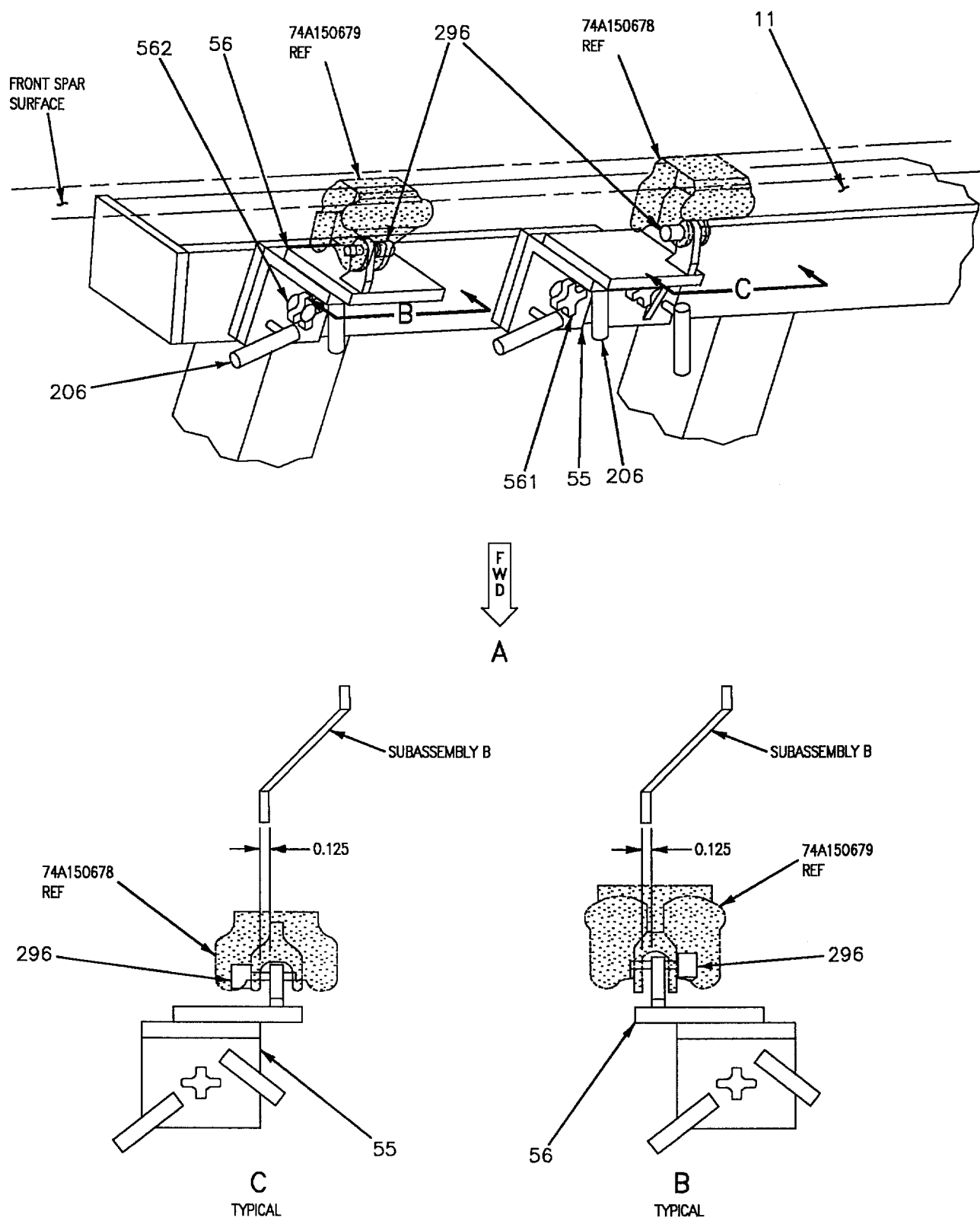


Figure 12. Leading Edge Flap Hinge Half Assemblies (Sheet 1)

Detail No.	Name	Function
11	Frame	Main frame assembly.
55	Locator	Locates 74A150679 hinge.
56	Locator	Locates 74A150678 hinge.
206	L-pins	Positions details 55 and 56.
296	Pin	Secures hinges to detail 55 and 56.
561	Hand knob	Secure detail 55.
562	Hand knob	Secure detail 56.

Figure 12. Leading Edge Flap Hinge Half Assemblies (Sheet 2)



41. LEADING EDGE SEALS, LOCATE AND DRILL. See figure 13.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit, Drilling Machine	RE574150002-1
Drilling Machine, Hydro Check Feed	74D110316-1001

Materials Required

None

- a. Locate subassembly G onto forward spar 74A150602.
- b. Secure in place at inboard end by inserting L-pins (detail 335) through spar and angle (detail 337), view A.
- c. Secure in place at the outboard end by inserting pin (detail 339) through 74A150678 and welded assembly (detail 338), view C.
- d. Insert pin (detail 506) through angle (detail 75) and flap transmission attach lugs, view B.
- e. Insert pin (detail 296) through angle (detail 77) and hinge half 74A150679, view D.
- f. For upper seals, 74A150646 and 74A150774:

(1) Locate upper seals in position between spar and drill plate (detail 43), part of subassembly G. See sheet 1.

(2) Using drill plate (detail 43) of subassembly G, 74D110316-1001 drilling machine, and drill bushing (detail 706 or 707) of RE5, drill holes at hole numbers 4 thru 25 to 0.2500 inch diameter. Drill hole numbers 1, 2, and 3 to 0.2970 inch diameter, view E. For RE574150002-1 Drilling Machine Accessory Kit (A1-F18AC-SRM-200, WP004 16). For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(3) Cold work hole numbers 1, 2, and 3 per Cold Working Fastener Holes (A1-F18AC-SRM-200, WP004 10).

g. For lower seals, 74A150648 and 74A150775:

(1) Locate lower seals in position between spar and drill plate (detail 50), part of subassembly G. See sheet 1.

(2) Using drill plate (detail 50) of subassembly G, 74A110316-1001 drilling machine, and drill bushing (detail 706 or 707) of RE5, drill hole numbers 2 thru 25 to 0.2500 inch diameter. Drill hole numbers 1 and 26 to 0.2970 inch diameter, view F. For RE574150002-1 Drilling Machine Accessory Kit (A1-F18AC-SRM-200, WP004 16). For drilling machine information (A1-F18AC-SRM-200, WP004 17).

(3) Cold work hole numbers 1 and 26 per Cold Working Fastener Holes (A1-F18AC-SRM-200, WP004 10).

h. Clean area using a vacuum.

i. Install seals.



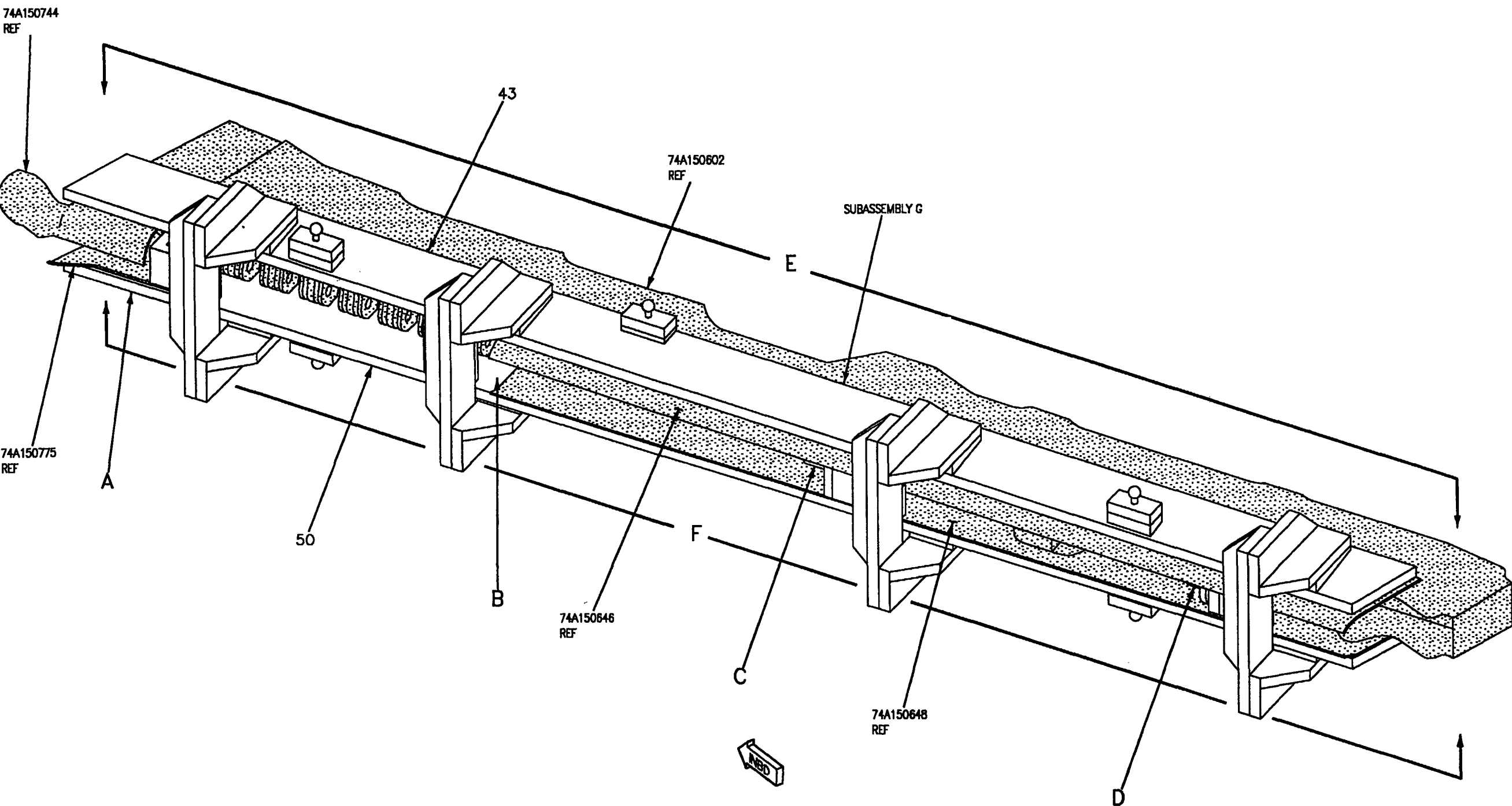


Figure 13. Leading Edge Seals (Sheet 1)

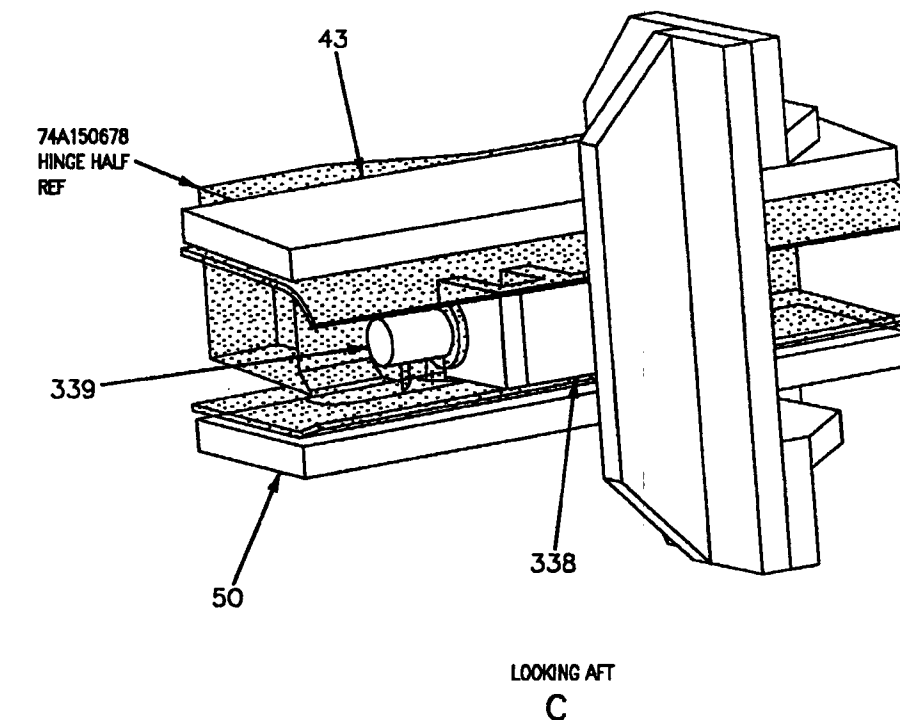
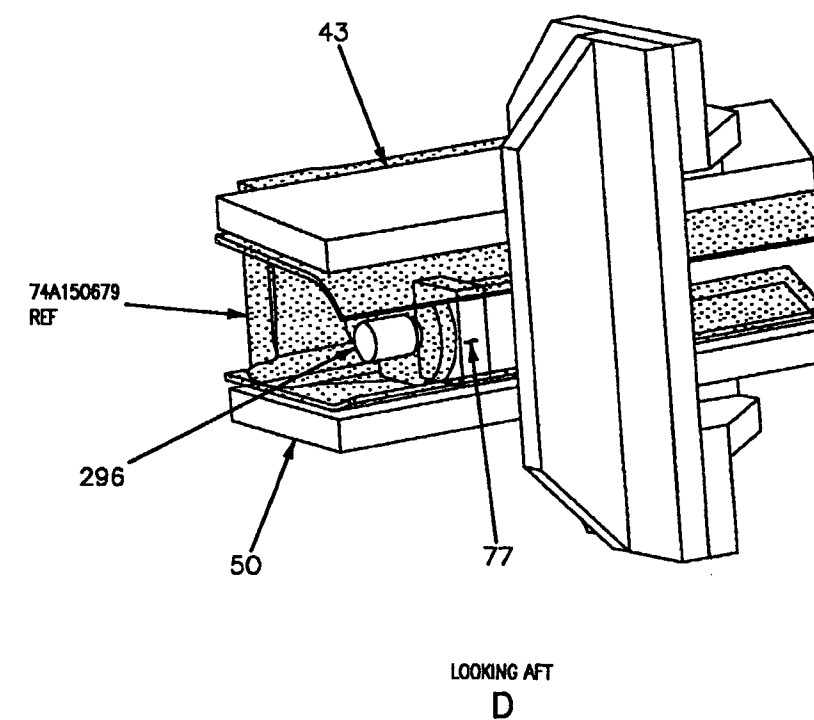
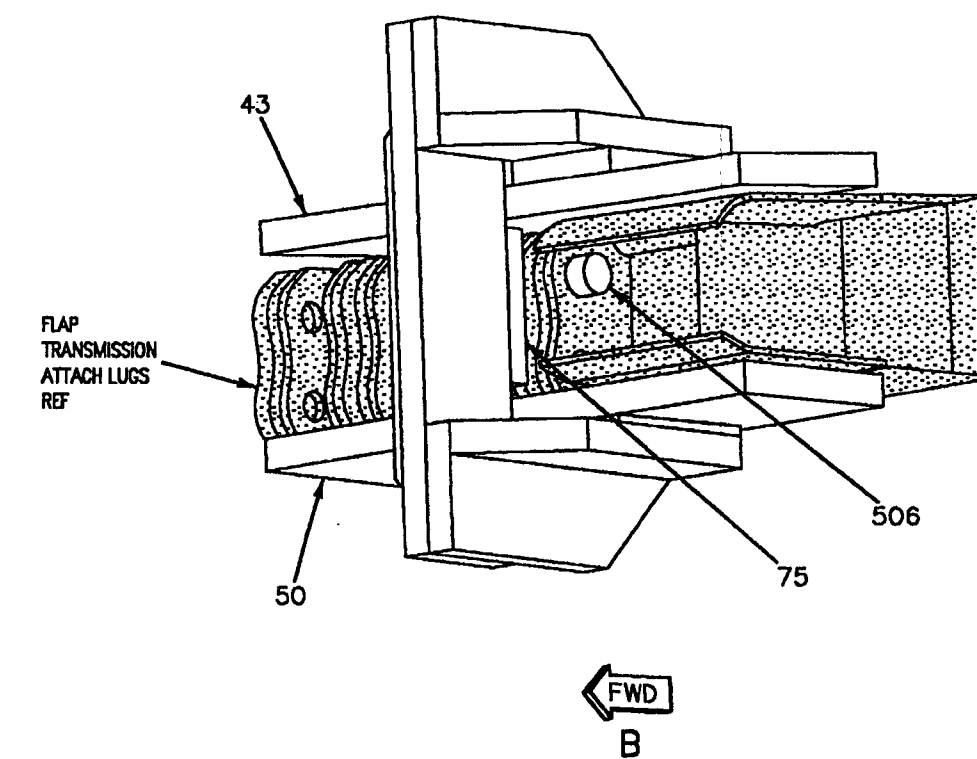
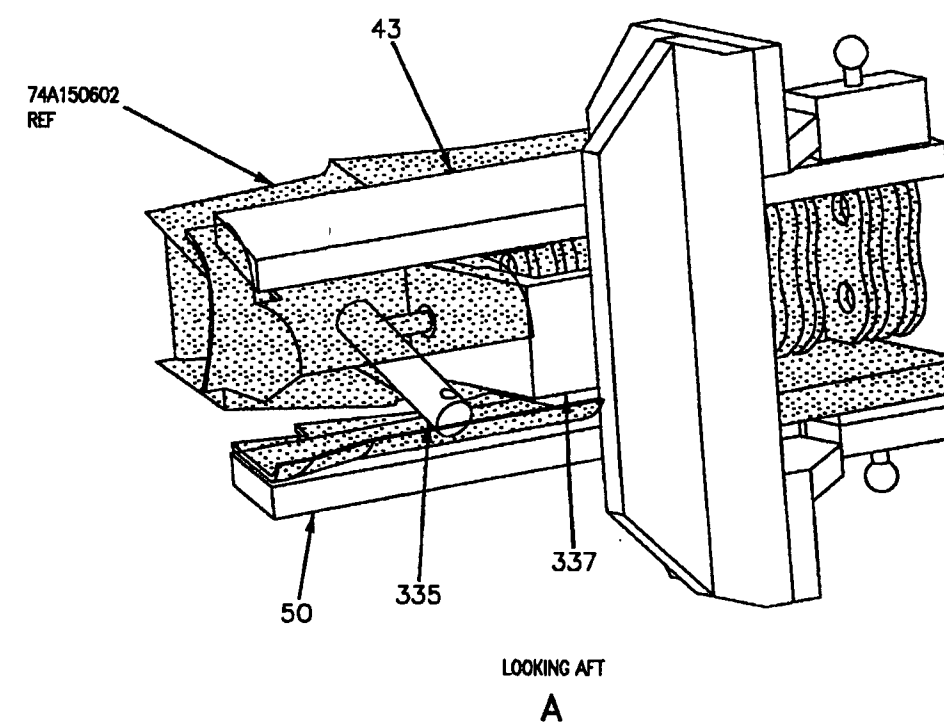


Figure 13. Leading Edge Seals (Sheet 2)

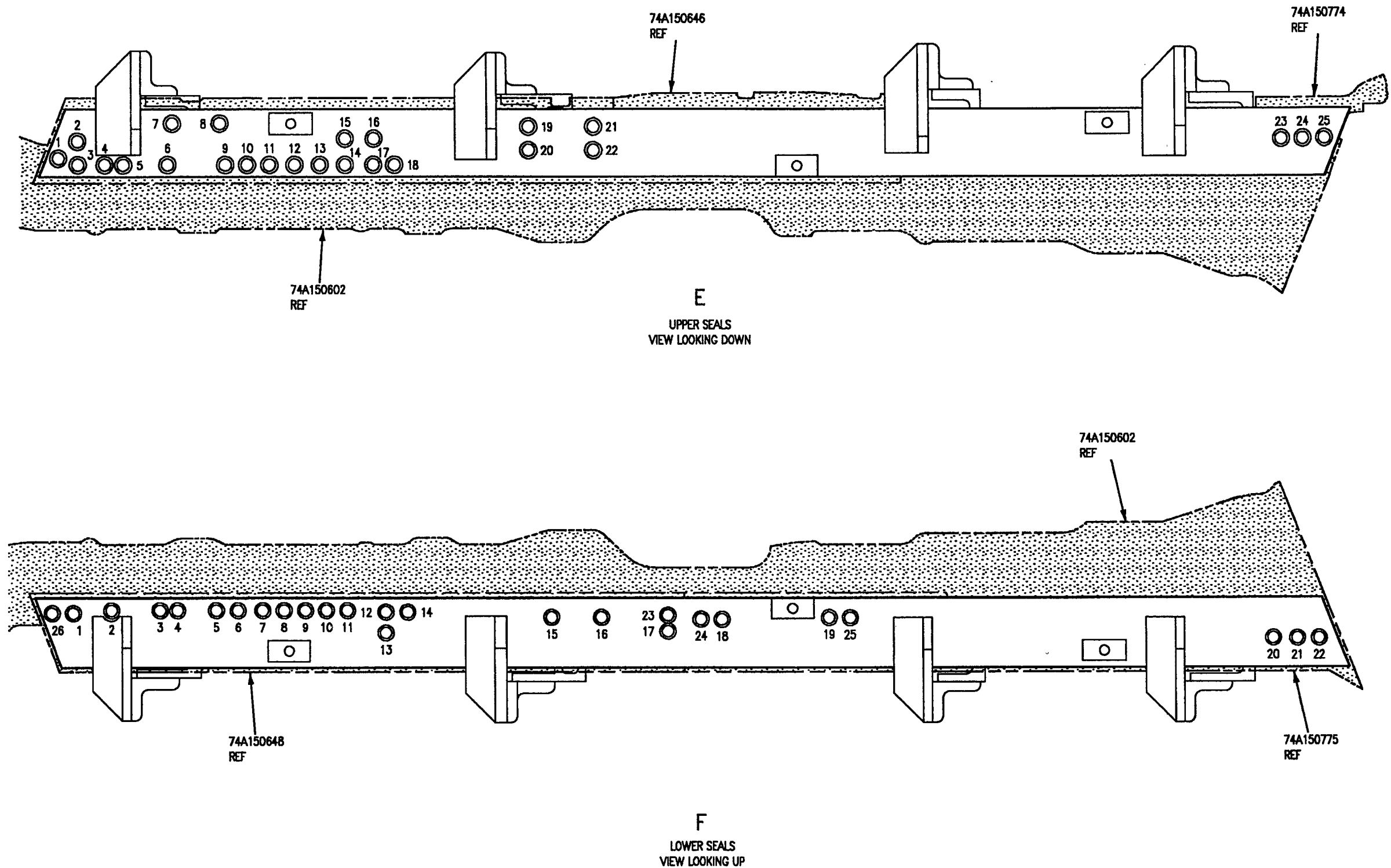


Figure 13. Leading Edge Seals (Sheet 3)

Detail No.	Name	Function
43	Laminate	Used to drill upper seals.
50	Laminate	Used to drill lower seals.
75	Angle	Locates flap transmission attach lugs.
77	Angle	Locates hinge half.
296	Pin	Secures forward spar to detail 77.
335	L-pin	Secures forward spar to detail 337.
337	Angle	Locates inboard end of forward spar.
338	Welded assembly	Locates outboard end of forward spar.
339	Pin	Secures forward spar to detail 338.
506	Pin	Secures forward spar to detail 75.

Figure 13. Leading Edge Seals (Sheet 4)

42. SCRIBING TRIM LINES ON LOWER WING FOLD SKIN FAIRING, 74A150839. See figure 14.

## Support Equipment Required

None

## Materials Required

None

a. Remove locators (details 65 and 187) from frame (detail 11).

b. Install locator (detail 42) on frame (detail 11) using L-pins (detail 163), two places, and secure with hand knobs (detail 130), two places, view A.

c. Position replacement skin in place.

d. Scribe trim lines onto skin along inboard surface of weld assembly (detail 287) and locator (detail 42) using scribe (detail 519), view A.

e. Trim skin as required.

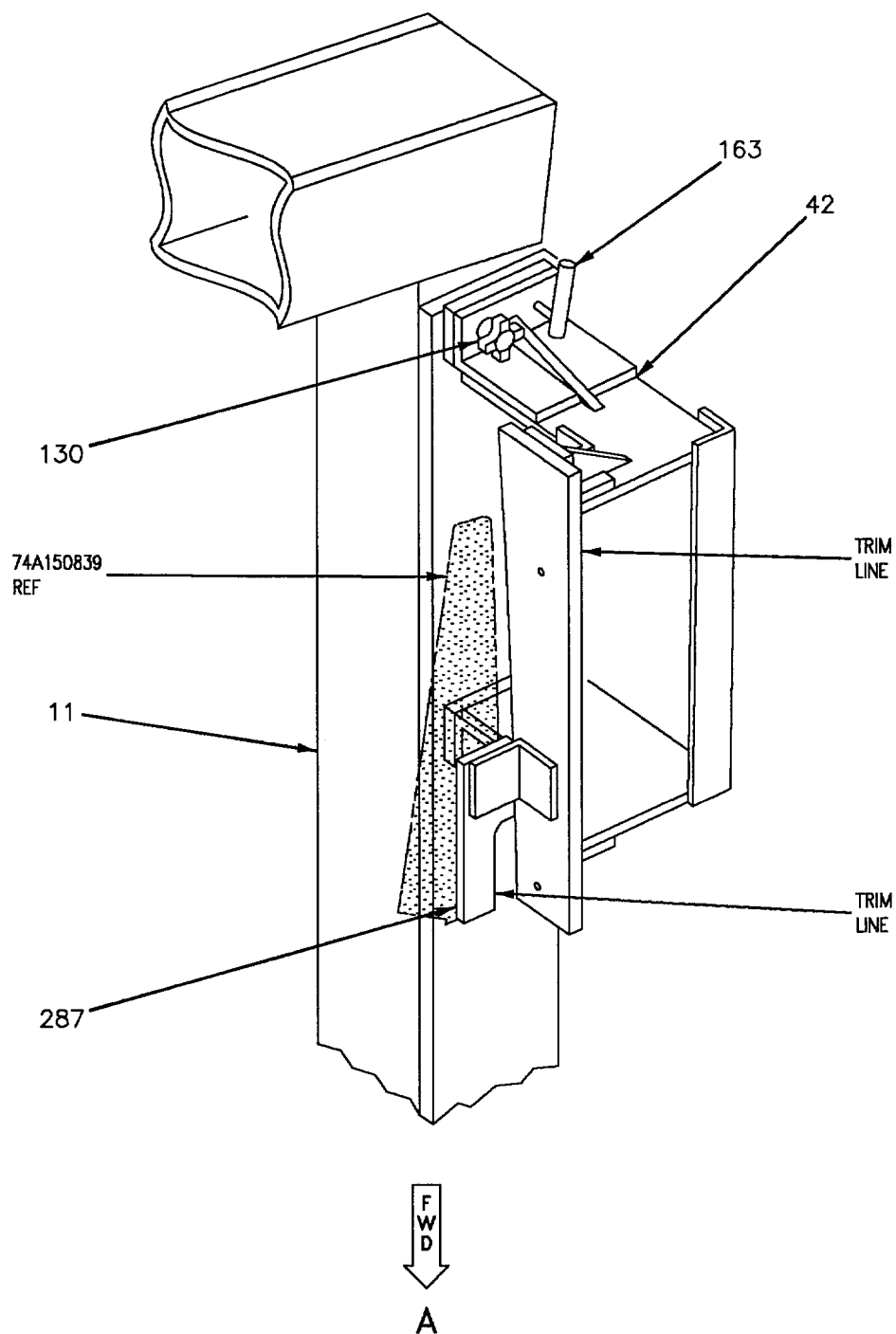


Figure 14. Lower Wing Fold Skin Fairing (Sheet 1)



Detail No.	Name	Function
11	Frame	Main frame assembly.
42	Locator	Positions detail 287.
130	Hand knob	Secures detail 42.
163	L-pin	Positions detail 42.
287	Welded assembly	Locates trim line.

Figure 14. Lower Wing Fold Skin Fairing (Sheet 2)

43. OUTBOARD LOWER SUPPORT, OUTBOARD LEADING EDGE FLAP SEAL, 74A150783. See figure 15.

## Support Equipment Required

None

## Materials Required

None

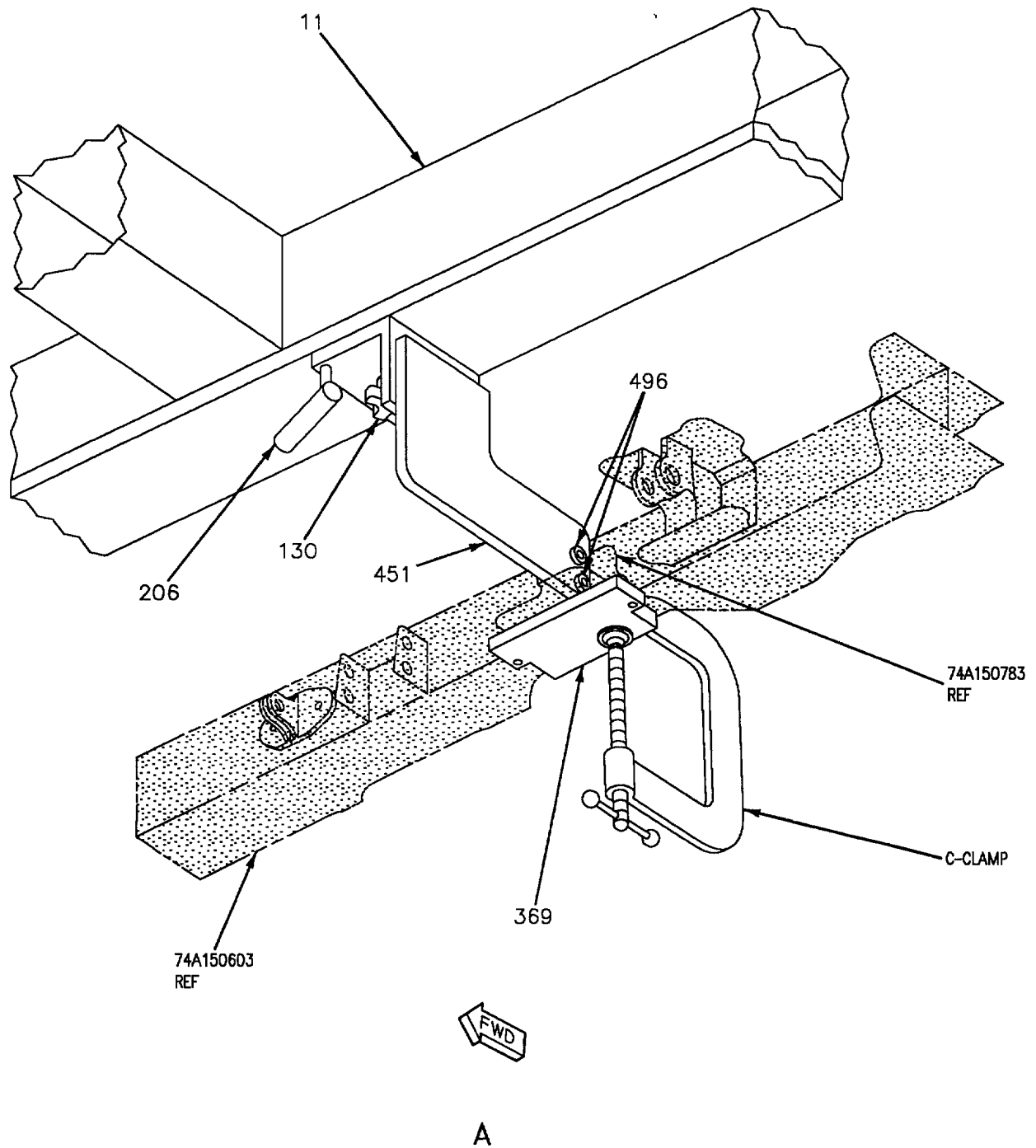
a. Position locator (detail 451) onto frame (detail 11) with L-pins (detail 206) and secure with hand knob (detail 130), view A.

b. Locate 74A150783 support next to locator (detail 451) and spar, view A.

c. Install plate (detail 369) next to spar 74A150603 and support 74A150783 next to plate (detail 369), for mold line location, view A.

d. Clamp plate (detail 369) and support in place, view A.

e. Using bushing (details 496), two places, drill 0.2500 diameter holes, view A.



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Figure 15. Outboard Lower Support, Outboard Leading Edge Flap Seal (Sheet 1)

Detail No.	Name	Function
11	Frame	Main frame assembly.
130	Hand knob	Secures detail 451.
206	L-pin	Positions detail 451.
369	Plate	Locates spar and seal.
451	Plate	Locates leading edge flap seal.
496	Bushings	Used to drill holes in detail 369.

Figure 15. Outboard Lower Support, Outboard Leading Edge Flap Seal (Sheet 2)

44. ELECTRICAL SUPPORT BRACKET,  
74A150703. See figure 16.

## Support Equipment Required

None

## Materials Required

None

a. Install locator (detail 379) onto frame (detail 11) with L-pins (detail 206) and secure with hand knob (detail 130), view A.

b. Locate support bracket, 74A150703, next to locator (detail 379) and spar, view A.

c. Install plate (detail 370) next to spar 74A150603 and 74A150703 next to plate (detail 370), view A.

d. Clamp plate (detail 370) and 74A150703 in place, view A.

e. Using bushing installed in locator (detail 379) drill 0.2500 diameter holes in line, view A.

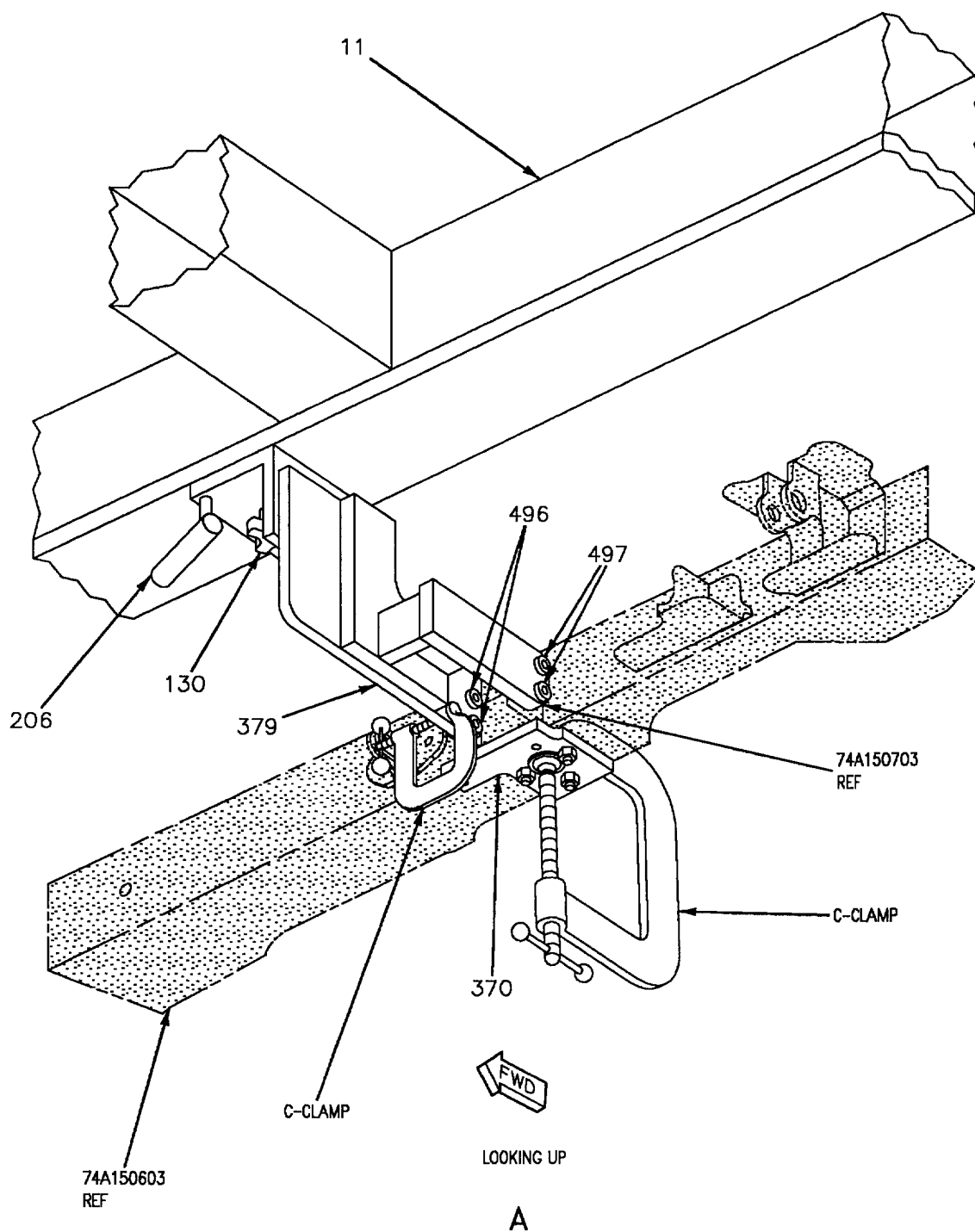


Figure 16. Electrical Support Bracket (Sheet 1)

Detail No.	Name	Function
11	Frame	Main frame assembly.
73	Plate	Used to install bushings.
130	Hand knob	Secures detail 379.
206	L-pin	Locates detail 379.
370	Plate	Used to bracket, 74A150703.
379	Locator	Locates electrical support bracket.
496, 497	Bushings	Used to drill 0.2500 holes in bracket, 74A150703.

Figure 16. Electrical Support Bracket (Sheet 2)

45. **DECODER SUPPORTS.** The paragraphs below locate the forward and aft decoder supports for repair or replacement. See figure 17.

## Support Equipment Required

None

## Materials Required

None

### 46. Locate and Replace Forward Decoder Support, 74A150747.

#### a. To locate:

(1) Install locator (detail 12) onto frame (detail 11) using L-pins (detail 209) and secure with cap screws (detail 212), view A.

(2) Install angle (detail 490) on locator (detail 12) using L-pins (detail 163) and secure with hand knob (detail 565), view A.

(3) Adjust socket head cap screws (detail 468 and 469) to apply minimal pressure on 74A150821, view A.

(4) Insert pin (detail 222) through support, 74A150747, and plate (detail 184), view B.

(5) Using subassembly B, gage 0.125 gap between plate (detail 184), 74A150747, and decoder support, view B.

#### b. To replace:

(1) Insert spacer (detail 436) between decoder support and plate (detail 184), view B.

(2) Insert pin (detail 222) through support, 74A150747, and plate (detail 184), view B.

(3) Locate replacement support in place and install on structure.

### 47. Locate and Replace Aft Decoder Support, 74A150748.

#### a. To locate:

(1) Install locator (detail 12) onto frame (detail 11) using L-pins (detail 209) and clamp with cap screws (detail 212), view A.

(2) Install angle (detail 490) on locator (detail 12) using L-pins (detail 163) and secure with hand knob (detail 565), view A.

(3) Adjust socket head cap screws (detail 468 and 469) to apply minimal pressure on 74A150821, view A.

(4) Use go/no go gage (detail 576) to gage a 1.125 gap between spacer (detail 185) and support, 74A150748, view C.

(5) Insert step pin (detail 566) through spacer (detail 185) and support, 74A150748, view C.

#### b. To replace:

(1) Insert step pin (detail 566) through spacer (detail 185) and replacement support 74A150748, view C.

(2) Locate replacement support in position using go/no go gage (detail 576) between spacer (detail 185) and outboard ear of support, view C.

(3) Clamp replacement support to forward end of aileron support 74A150821, view C.

(4) Install replacement support on structure.

### 48. Aft Decoder Support, 74A150748, Rework.

#### a. Remove bushing from support.

b. Measure and record outside diameter of removed damaged bushing to determine requirement for first or second oversize replacement bushing.

c. For first oversize rework of outboard ear of decoder support:

(1) Ream hole using drill bushing (detail 567), and TFIM 25.1115158 reamer with pistol grip hand drill with 1/2 inch chuck, view D.

(2) Install bushing into outboard ear of decoder support.

(3) Final ream bushing using drill bushing (detail 569), and TFIM 25.1113747 reamer with hand drill, view D.

d. For second oversize rework of outboard ear of decoder support:



(1) Ream hole using drill bushing (detail 568), and TFIM 25.1115309 reamer with pistol grip hand drill with 1/2 inch chuck, view D.

(2) Install bushing into outboard ear of decoder support.

(3) Final ream bushing using drill bushing (detail 569), and TFIM 25.1113747 reamer with hand drill, view D.

e. For first oversize rework of inboard ear of decoder support:

(1) Ream hole using drill bushing (detail 571), and TFIM 25.1113908 reamer with pistol grip hand drill with 3/8 inch chuck, view D.

(2) Install bushing into outboard ear of decoder support.

(3) Final ream bushing using drill bushing (detail 570), and TFIM 25.1112502 reamer with hand drill, view D.

f. For second oversize rework of inboard ear of decoder support:

(1) Ream hole using drill bushing (detail 572), and TFIM 25.1114064 reamer with pistol grip hand drill with 3/8 inch chuck, view D.

(2) Install bushing into outboard ear of decoder support.

(3) Final ream bushing using drill bushing (detail 570), and TFIM 25.1112502 reamer with hand drill, view D.

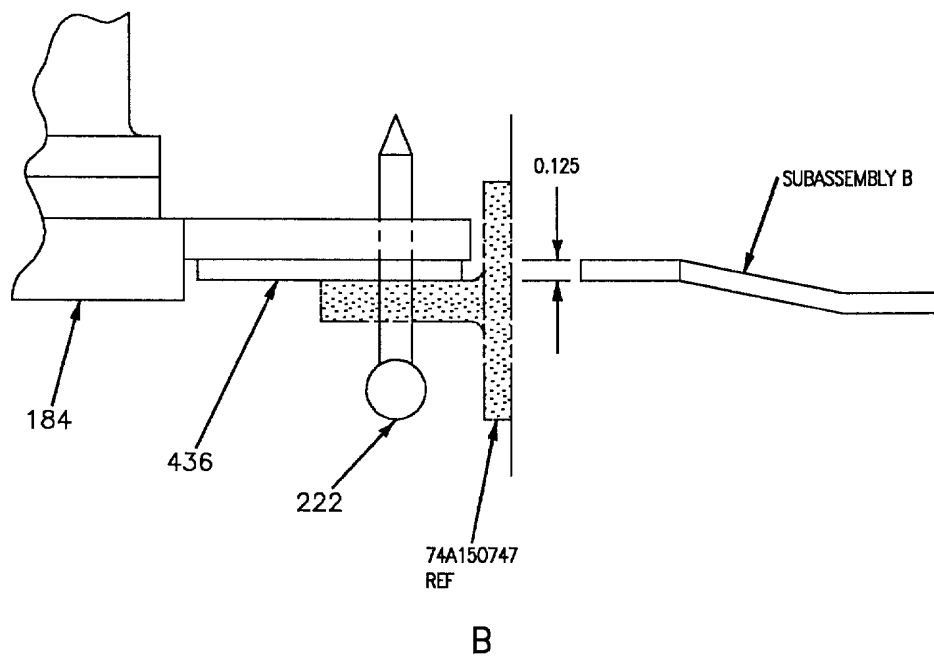
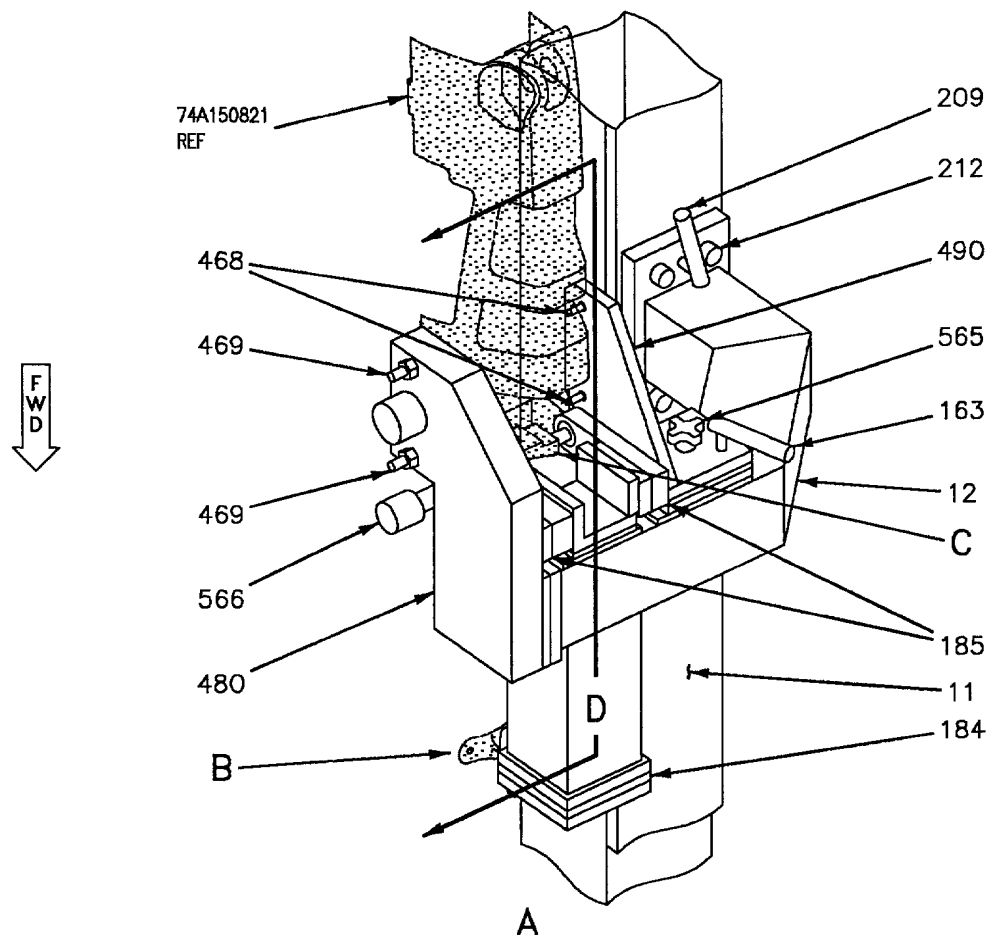
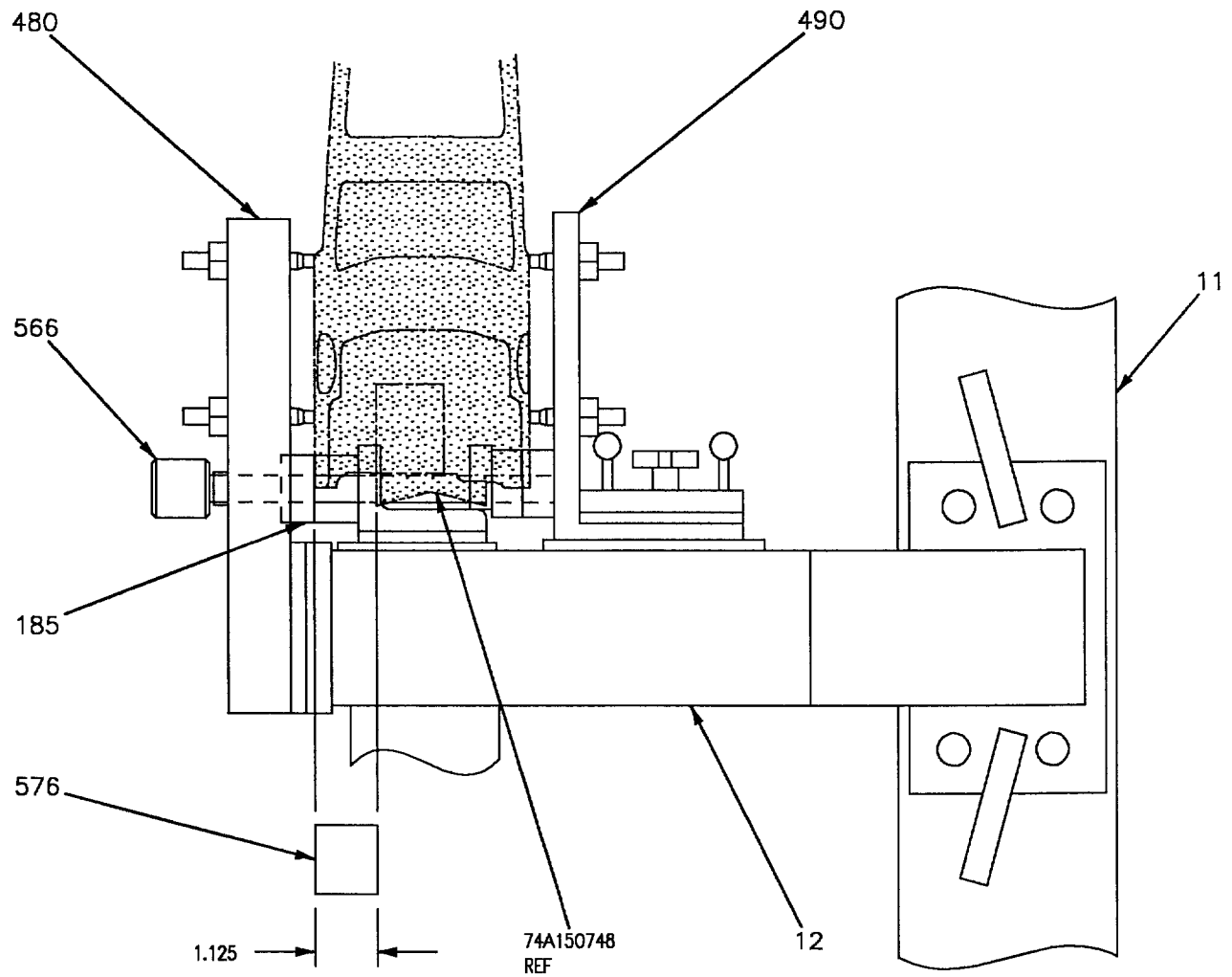


Figure 17. Decoder Support (Sheet 1)



C

Figure 17. Decoder Support (Sheet 2)

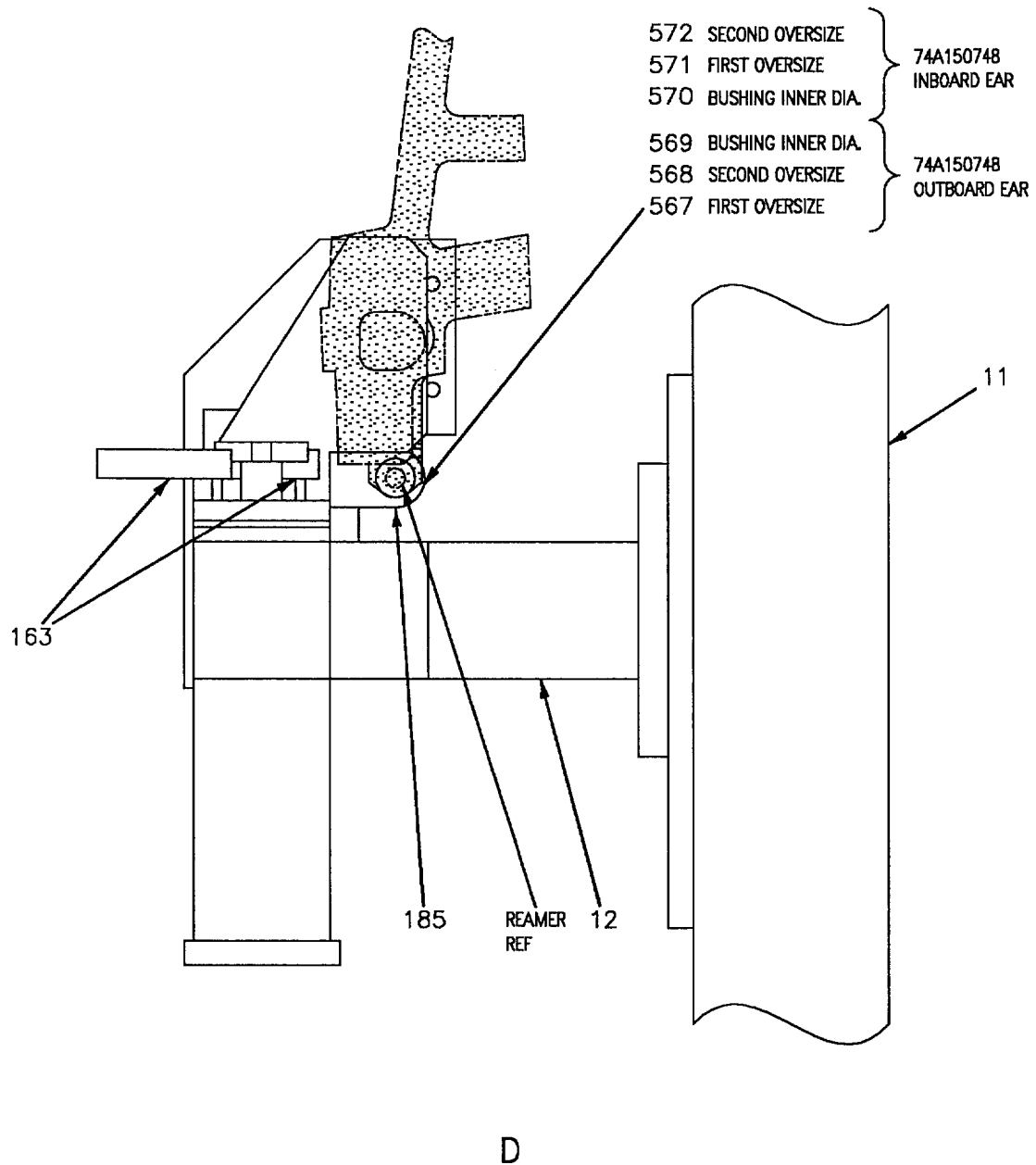


Figure 17. Decoder Support (Sheet 3)

Detail No.	Name	Function
Subassembly B	Locator	Used to inspect gap between detail 184 and support.
11	Frame	Main frame assembly.
12	Locator	Locates forward/aft decoder supports.
163	L-pins	Positions detail 490.
184	Plate	Used to locate supports 74A150747, 74A150748.
185	Spacer	Used to gage space between support and details.
209	L-pins	Positions detail 12.
212	Cap screws	Secures detail 12.
222	Pin	Used to align supports 74A150747, 74A150748 and detail 184.
436	Spacer	Used to gage space between support and detail 184.
468/469	Socket head cap screw	Used to secure support in detail 12.
490	Angle	Part of detail 12.
565	Hand knob	Secures detail 490.
566	Step pin	Aligns support and detail 185.
567	Drill Bushing	Used in reaming inboard ear of support.
568	Drill Bushing	Used in reaming inboard ear of support.
569	Drill Bushing	Used in reaming inboard ear of support.
570	Drill Bushing	Used in reaming outboard ear of support.
571	Drill Bushing	Used in reaming outboard ear of support.
572	Drill Bushing	Used in reaming outboard ear of support.
576	Locator	Used to inspect gap for distance between spacer and support.

Figure 17. Decoder Support (Sheet 4)

49. FLAP TRANSMISSION, OUTBOARD SUPPORT, 74A150734. See figure 18.

## Support Equipment Required

None

## Materials Required

None

a. Position locator (detail 54) on frame (detail 11) using L-pins (detail 206) and secure clamping with hand knob (detail 130), view A.

b. Locate fitting, 74A150734, over angle (detail 386), sliding next to shoulders of angle (detail 386) and next to forward surface of front spar, 74A150603, view A.

c. Clamp outboard leading edge flap transmission support, 74A150734 to front spar, 74A150603.

d. Match drill attach holes.

e. Install support.

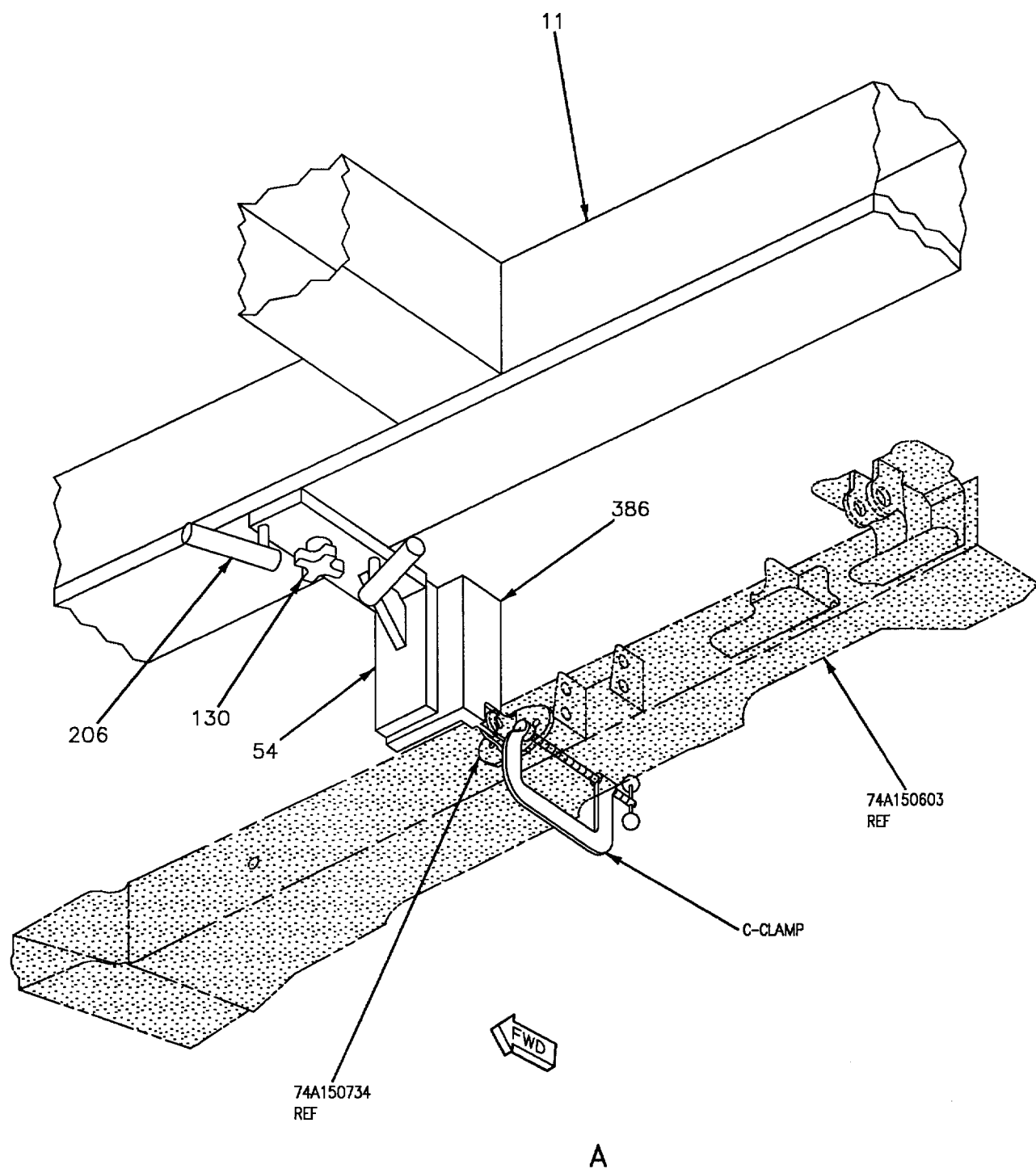


Figure 18. Flap Transmission, Outboard Support (Sheet 1)

Detail No.	Name	Function
11	Frame	Main frame assembly.
54	Locator	Locates support clevis.
130	Hand knob	Secures detail 54.
206	L-pin	Positions detail 54.
386	Angle	Locates fitting of 74A150734.

Figure 18. Flap Transmission, Outboard Support (Sheet 2)





## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## DRILLING FIXTURE, RE974150002-1, -2

## OUTER WING

## Reference Material

None

## Alphabetical Index

Subject	Page No.
Description .....	1
Inspection and Removal of Bushings Before Installing Outer Wing into Fixture .....	10
Loading Wing into Drilling Fixture .....	1

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The outer wing drilling fixture (fixture) is used to locate and maintain the relation of various peripheral outer wing (wing) structure components with each other. The fixture has tooling holes at the forward, aft, and wing fold spars for rough positioning of the structure assembly. The fixture provides for use of support equipment required to do bushing hole boring, cold-working, reaming, bushing installation, and bushing reaming after installation. The fixture requires accurate leveling and verification with an alignment kit, before use, and should be gage recycled with the outer wing maintenance fixture alignment kit to verify fixture remains accurate.

## 3. LOADING WING INTO DRILLING FIXTURE. See figure 1.

## Support Equipment Required

None

## Materials Required

None

a. Retract ASM Units I, II, III, and IV, as applicable, to clear the area for the outer wing sheet 1.

b. Move all adjustable details to their retracted position:

(1) Retract subassembly B by removing T-pin (detail 319) while supporting subassembly B by hand, view E.

(2) Retract locator (detail 285) by removing L-pin (detail 288) and rotating away from wing area, view B.

(3) Retract locator (detail 36) by removing L-pin (detail 288) and rotating away from wing area, view A.

(4) Retract locator (detail 305) by removing L-pin (detail 307) and rotating away from wing area, view D.

(5) Retract locator (detail 308) by removing L-pin (detail 307) and rotating away from wing area, view C.

(6) Retract locators (detail 55) by removing two L-pin (detail 265) and rotating away from wing area, 2 places, views D and E.

c. Retract ASM Unit VI by removing two L-pins (detail 232) and sliding unit aft approximately 3 inches, view B.

d. Retract ASM Unit VII by removing two L-pins (detail 232) and sliding unit aft approximately 3 inches, view C.

e. Turn hand knobs (detail 286) at forward and aft end of missile rib to retract swivel feet (detail 287) away from wing area, views C and D.

f. Position outer wing assembly in approximate position in drilling fixture so that it rests on support pads (detail 252), 3 places, views A, B, and D.

g. Attach locator (detail 38) to table (detail 11) using socket head cap screw (detail 216), view E.

h. Slide locator pin (detail 303) next to forward spar, view E.

i. Attach locator (detail 31) to table (detail 11) using socket head cap screw (detail 216), view B.

j. Slide locator pin (detail 226) next to wing fold rib, view B.

k. Attach locator (detail 374) to angle (detail 369) using L-pins (detail 373) and hand knob (detail 372), view D.

l. Slide locator pin (detail 56) next to missile rib, view D.

m. Rough locate the outer wing in the drilling fixture:

(1) Turn knobs (detail 250), 3 places, to adjust wing up or down, to align tooling holes with locator pins (details 56, 226, and 303), views B, D, and E.



Do not insert pins into tooling holes in wing structure while adjusting wing. Damage to wing structure or locator pins may occur.

(2) Slide locator pins (details 56, 226, 303) in and out of tooling holes in structure, if possible, to determine correct position of wing. Do not leave location pins inserted in tooling holes while adjusting wing, view B, D, and E.

(3) Adjust wing up/down, forward/aft, and inboard/outboard until all locator pins (detail 56, 226, and 303) will insert and remove from tooling holes easily.

#### NOTE

Do not move wing from rough located position while securing in place.

n. Install locator (detail 308) by rotating into position and installing L-pin (detail 307), view C.

o. Install locator (detail 305) by rotating into position and installing L-pin (detail 307), view D.

p. Install locator (detail 36) by rotating into position and installing L-pin (detail 288), view A.

q. Install locator (detail 285) by rotating into position and installing L-pin (detail 288), view B.

r. Snug swivel feet (detail 402) up against wing upper surface, 4 places, by tightening, views A, B, C, and D.

s. Snug swivel feet (detail 287) up against wing outboard surface, 2 places, and aft surface, by tightening hand knob (detail 286), views C and D.

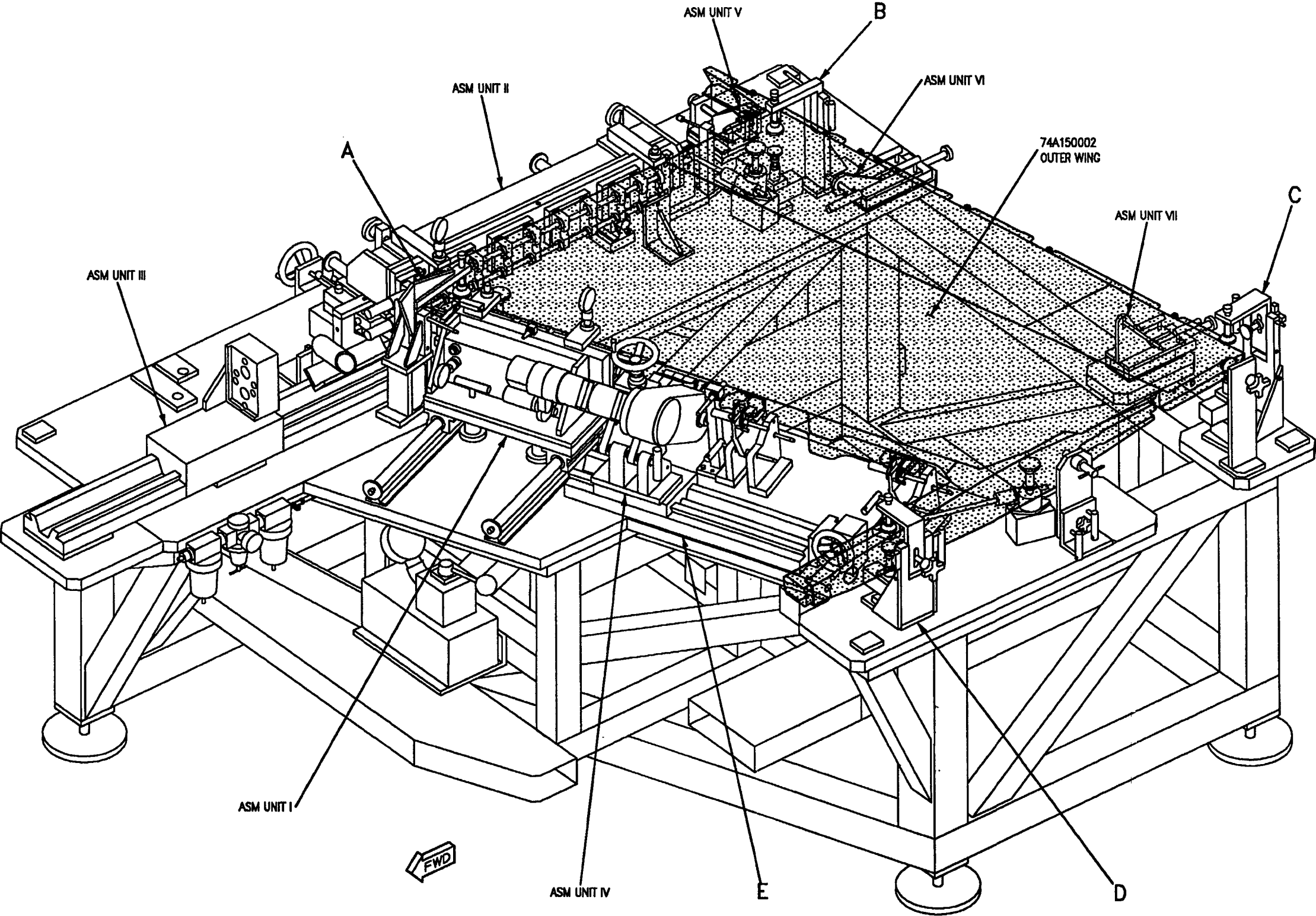
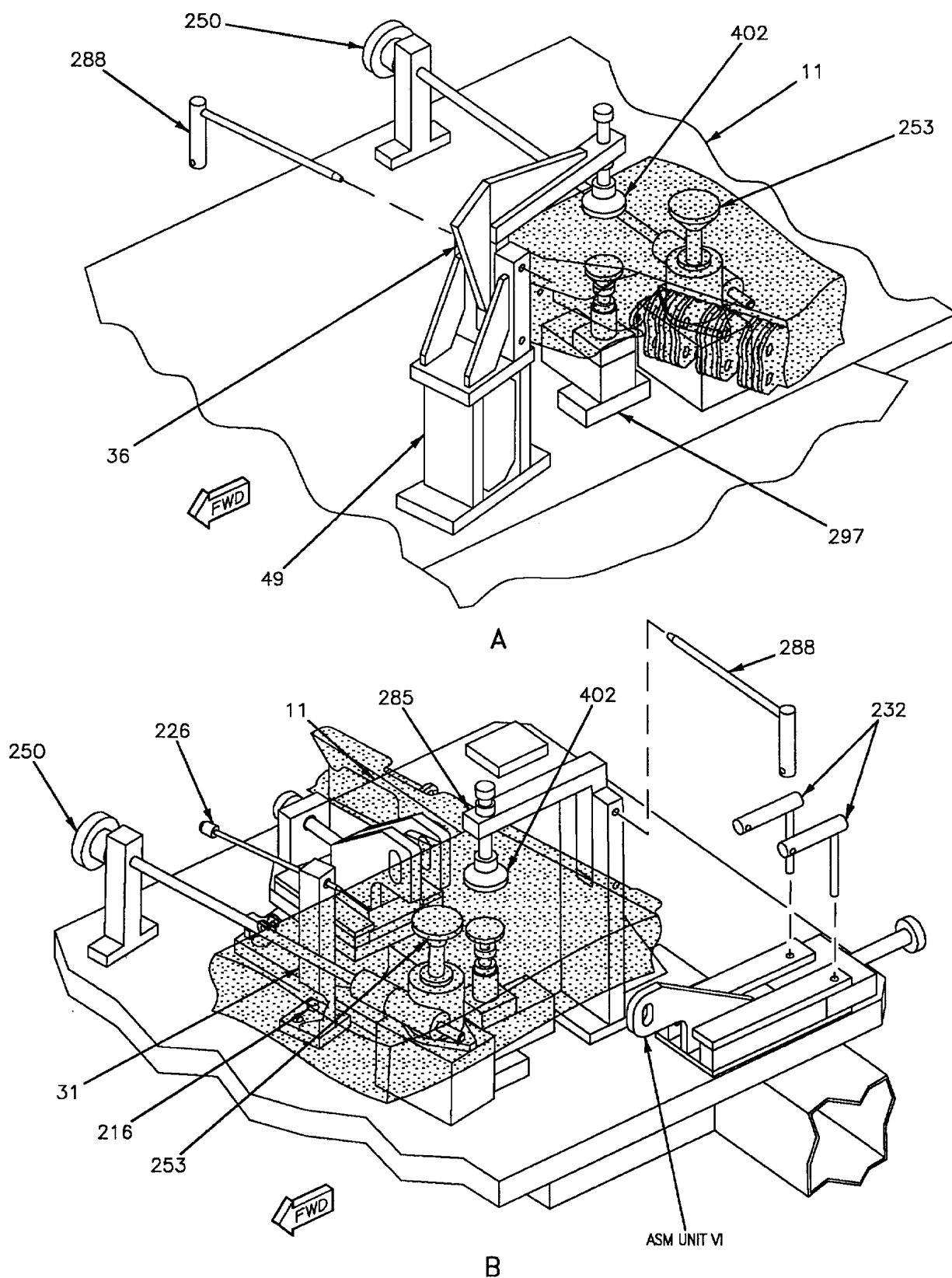
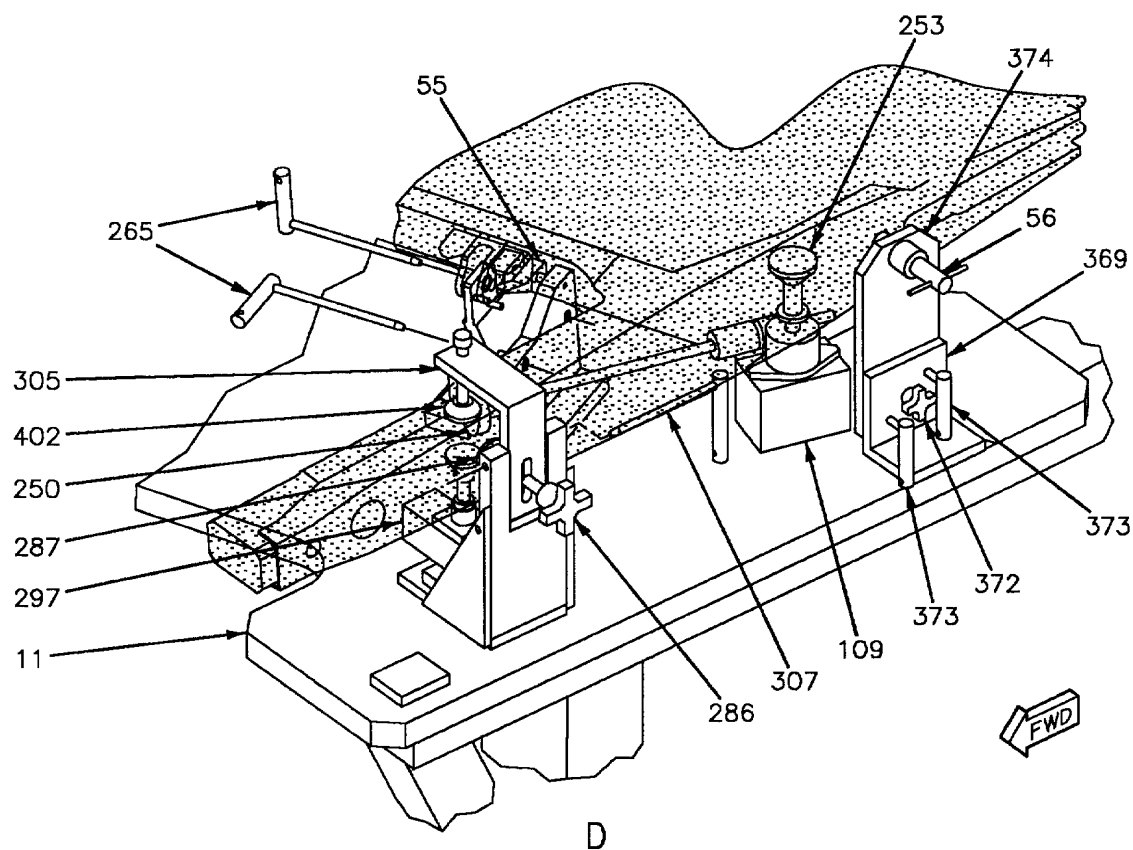
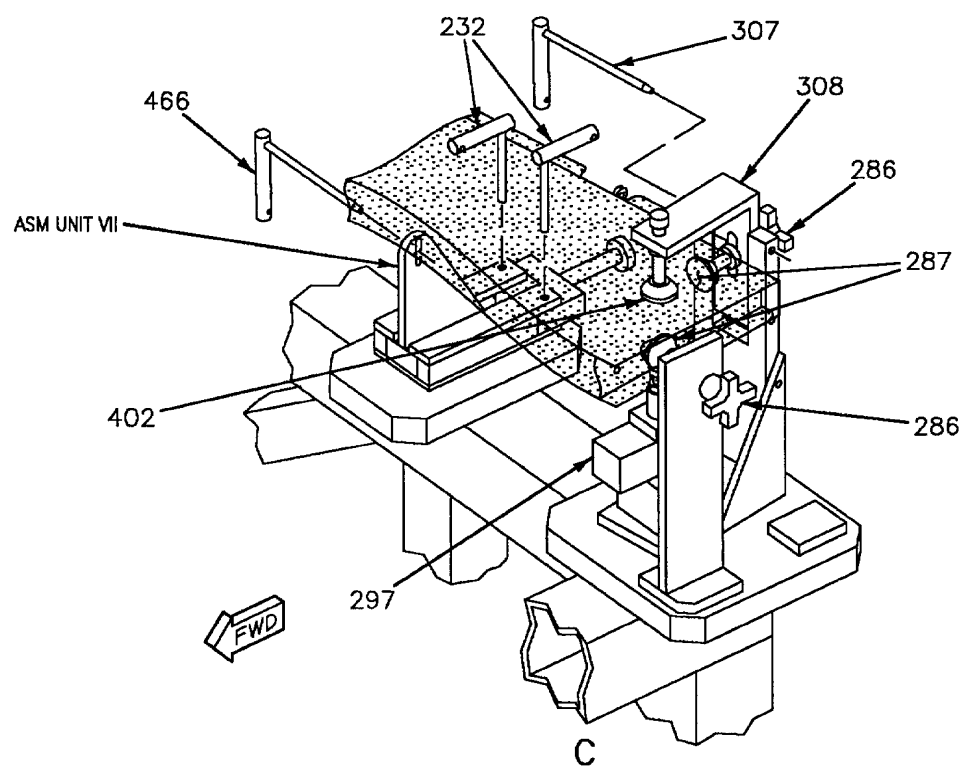


Figure 1. Loading Wing into Drilling Fixture (Sheet 1)





**Figure 1. Loading Wing into Drilling Fixture (Sheet 3)**

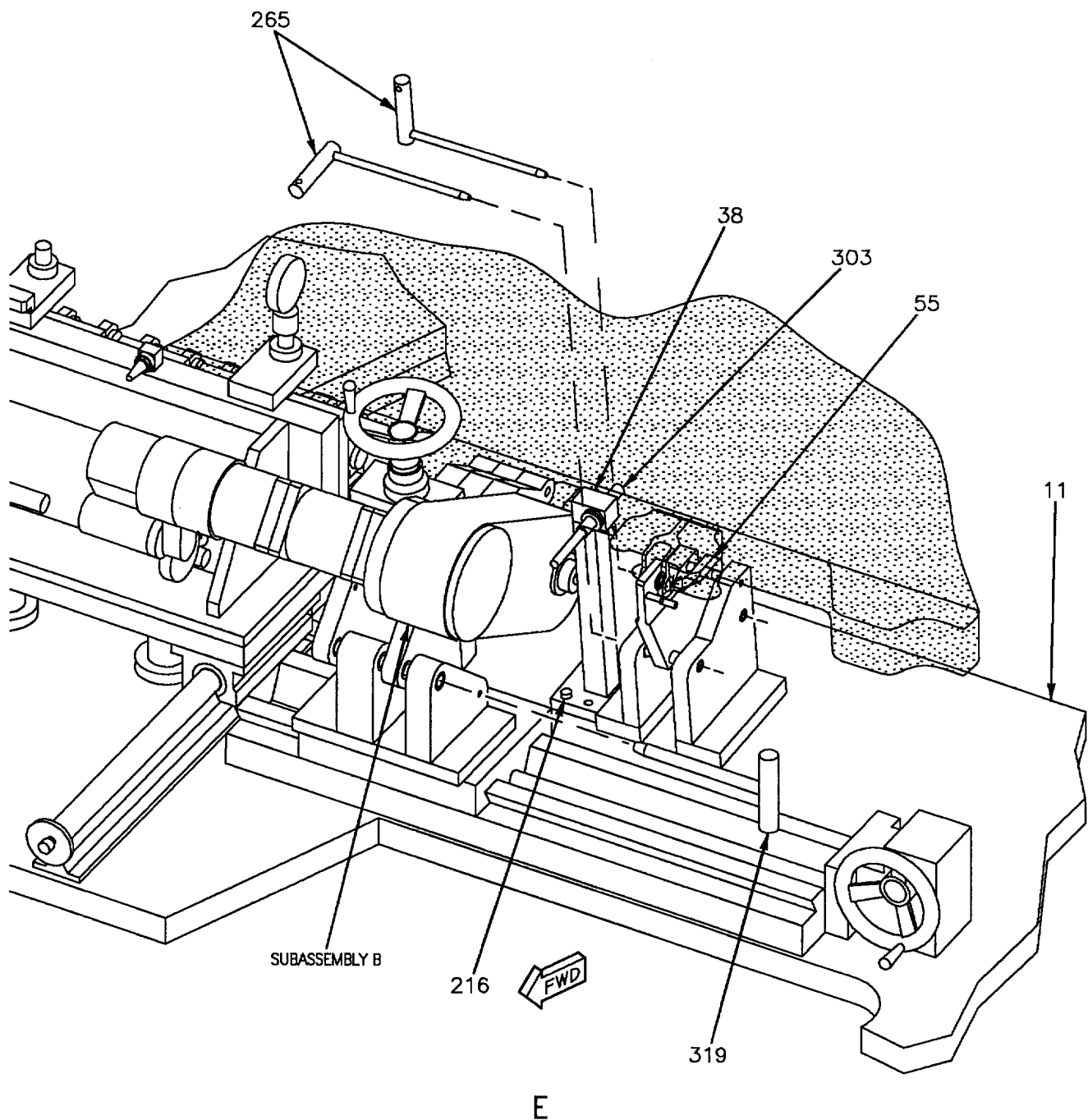


Figure 1. Loading Wing into Drilling Fixture (Sheet 4)

Detail No.	Name	Function
Subassembly B	Drill Advance	Advances drilling details through leading edge flap transmission lugs.
11	Table	Support for all details of drilling fixture.
31	Locator	Locates wing at aft wing fold rib tooling hole.
36	Locator	Locates wing in position at forward inboard corner.
38	Locator	Locates wing at forward spar tooling hole.
55	Locator	Locates wing in position at flap hinge halves.
56	Locator Pin	Pins into aft missile rib hole.
216	Socket Head Cap Screw	Attaches various locators to table.
226	Locator Pin	Pins in aft wing fold rib tooling hole.
232	L-Pin	Pins ASM Units VI and VII in place.
250	Knob	Turning adjusts support pads up/down.
253	Support Pad	Supports outer wing in drilling fixture.
265	L-Pin	Pins detail 55 in extended position.
285	Locator	Locates wing in position at aft inboard corner.
286	Hand Knob	Turns swivel feet to secure wing.
287	Swivel Foot	Contacts wing to secure in place.
288	L-Pin	Pins various locators in extended position.
303	Locator Pin	Pins in forward spar tooling hole.
305	Locator	Locates wing in position at forward end of missile rib.
307	L-Pin	Pins various locators in extended position.
308	Locator	Locates wing in position at aft outboard corner.
319	T-Pin	Locates subassembly B in extended position.
369	Angle	Supports locator (detail 374).
372	Hand Knob	Secures locator (detail 374) to angle (detail 369).

Figure 1. Loading Wing into Drilling Fixture (Sheet 5)



Detail No.	Name	Function
373	L-Pin	Locates and attaches locator (detail 374) to angle (detail 369).
374	Locator	Locates pin at aft missile rib.
402	Swivel Foot	Contacts wing to secure in place.

Figure 1. Loading Wing into Drilling Fixture (Sheet 6)

4. INSPECTION AND REMOVAL OF BUSHINGS BEFORE INSTALLING OUTER WING INTO FIXTURE. See figure 2. The front spar transmission bushings and wing fold transmission bushings shall be inspected for damage and replaced before installing outer wing for drilling operations.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Repair Kit, Bushing	RE474150002-1

### Materials Required

None

a. Do Loading Wing Into Drilling Fixture, this WP.

b. Inspect front spar transmission lugs for loose or damaged bushings.

c. Inspect wing fold transmission lugs for loose or damaged bushings.

d. If loose or damaged bushings are found, do substeps below:

(1) Remove bushings from transmission lugs using SPT10RE474150002TD located in RE474150002-1 Bushing Repair Kit.

(2) Measure and record outside diameter of each removed bushing to determine first or second oversize requirement for repair and replacement operations. See figure for bushing information.

FRONT SPAR TRANSMISSION					
DIAMETER OF REMOVED BUSHING	RE9 ALIGNMENT/ SET-UP PINS/ BUSHING		REPAIR REQUIRED	CUTTERS AND BUSHINGS	RE9 REAM CHECK PINS
0.3435 I.D.	481	257,259	ALIGNMENT ONLY	---	---
0.466	480	424,425	FIRST OVERSIZE	TABLE 1	474
0.482	477	350,352	SECOND OVERSIZE	TABLE 1	475
0.487	478	414,415	SECOND OVERSIZE	TABLE 1	475
0.503	REQUIRES ENGINEERING DISPOSITION				

WING FOLD TRANSMISSION					
DIAMETER OF REMOVED BUSHING	RE9 ALIGNMENT/ SET-UP PINS/ BUSHING		REPAIR REQUIRED	CUTTERS AND BUSHINGS	RE9 REAM CHECK PINS
0.4535 I.D.	470	271,274	ALIGNMENT ONLY	---	---
0.574	386	418,419	FIRST OVERSIZE	TABLE 1	471
0.592	412	272,275	SECOND OVERSIZE	TABLE 1	472
0.597	387	420,421	SECOND OVERSIZE	TABLE 1	472
0.613	REQUIRES ENGINEERING DISPOSITION				

TABLE 1. MACHINING DATA CHART						
LEADING EDGE FLAP TRANSMISSION ATTACH LUGS 74A150602						
DIAMETER OF HOLE IN ATTACH LUGS (INSPECTED)	SPARES CONFIGURATION ENGINEERING BUSHING	SLIP RENEWABLE BUSHING	LEAD IN BUSHING	PIN OFF / CHECK PIN NO. AND DIA.	CUTTER (REAMER)	
	P/N (DIA. O/D)	DET. NO. I.D.	DET. NO. I.D.		NUMBER	DIAMETER
0.4665	ST4M219--	NO. 350/0.4828	NO. 352/0.4828	NO. 474/0.4816	SPT22-- RE474150002TD	0.4821
0.482/0.487	ST4M219--	NO. 351/0.5037	NO. 353/0.5037	NO. 475/0.5027	SPT23-- RE474150002TD	0.5032 REF.
0.503	ENGINEERING DISPOSITION	NOT SUPPLIED WITH THIS TOOL				
---	BUSHING I.D. FINAL REAM	NO. 257/0.3443	NO. 259/0.3443	NO. 476/0.3433	SPT9-- RE474150002TD	0.3432
WING FOLD TRANSMISSION ATTACH LUGS 74A150613						
0.5740	ST4M219-- (FIRST OVERSIZE)	NO. 272/0.5926	NO. 275/0.5926	NO. 471/0.5916	SPT77-- RE174110004TD	0.5921
0.592 0.598	ST4M219-- (SECOND OVERSIZE)	NO. 273/0.6137	NO. 276/0.6137	NO. 472/0.6127	SPT78-- RE174110004TD	0.6132
0.613	ENGINEERING DISPOSITION	NOT SUPPLIED WITH THIS TOOL				
---	BUSHING I.D. FINAL REAM	NO. 271/0.4542	NO. 274/0.4542	NO. 473/0.4532	SPT80-- RE174110004TD	0.4535

Figure 2. Bushing and Machining Data



## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING LEADING EDGE FLAP

## HINGE HALF LOCATING FIXTURE, RE774150002-1, -2

## Reference Material

Aircraft Corrosion Controls .....	A1-F18AC-SRM-500
Priming Procedures .....	WP011 00
Integrated Flight Controls .....	A1-F18AC-570-300
Outboard Flap (84MPU537 or 84MPV538) .....	WP032 00
Outboard Leading Edge Flap Transmission (84MAU504 or 84MAV503) .....	WP033 00
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Structure Assy - Wing, Outer .....	FIG 008 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Bushing Removal, Installation, and Reaming Tool Set, Part No.74D110174-1001 .....	WP004 37
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00
Weapon Control System .....	A1-F18AC-740-300
Guided Missile Launcher LAU-7/A-5 (61A-Y501) .....	WP037 00
Wiring Diagrams .....	A1-F18A( )-WDM-000

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## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The outer wing leading edge flap hinge locating fixture (fixture) is used to evaluate and repair the outer wing leading edge flap hinge halves (hinge half). The fixture contains various details for location on outer wing and locating hinge halves. The fixture is

also used for drilling and reaming the hinge halves, nominal and oversize; and for installing, coldworking, and reaming bushings. The fixture requires verification with an alignment kit before use, and shall be gage recycled to verify the fixture remains accurate. Tables 1, 2, and 3 will be referenced during required repair actions for applicable information and details.

Table 1. Replacement of Hinge Halves

Step No.	Operation Type	Drill or Reamer Used	RE774150002 Guide Bushing and Size	Lug Drilled
1	Drill (0.4531)	SPT11-74A150602-5001	Detail 216 (0.4531)	Both
2	Drill (0.5781)	SPT12-74A150602-5001	Detail 223 (0.5781)	Near
3	Ream (0.4719)	SPT4-74A150602-5001	Detail 217 (0.4719)	Far
4	Ream (0.5938)	SPT14-74A150602-5001TD	Detail 224 (0.5938)	Near
5	Cold Work - Split Sleeve Method			Both
6	Jig Ream (0.4844)	SPT6-74A150602-5001TD	Detail 232 (0.4844)	Far
7	Jig Ream (0.6094)	SPT13-74A150602-5001TD	Detail 225 (0.6094)	Near
8	Ream (0.4999)	SPT8-74A150602-5001	Detail 219 (0.4999)	Far
9	Ream (0.6249)	SPT15-74A150602-5001	Detail 227 (0.6249)	Near
10	Install Bushings - Press Fit			Both
11	Ream (0.3754)	SPT17-74A150602-5001	Detail 231 (0.3754)	Far
12	Ream (0.5005)	SPT16-74A150602-5001	Detail 220 (0.5005)	Near
13	Final Pin-Off With Detail 271		Detail 220 (0.5005)	Both

Table 2. Coldworking Equipment

Part Number	Size	Lug	Mandrel	Inspection Gage	Split Sleeve	Wedge Assembly	Sleeve Retaining Jaw
74A150678 and 74A150679	Nominal	Far	TD761W-80	TD216G5-25	TD761G-8016SPL	SPT10-74A150602-5001TD	RE774150002-264
		Near	TD761V-100	TD216G5-27	TD761G-10008SPL	None	RE774150002-270

Table 2. Coldworking Equipment (Continued)

Part Number	Size	Lug	Mandrel	Inspection Gage	Split Sleeve	Wedge Assembly	Sleeve Retaining Jaw
74A150678 and 74A150679	Second Oversize	Far	TD761W-83	TD216G5-83	TD761G-8316	SPT10-74A150602-5001TD	RE774150002-264
		Near	TD761V-103	TD216G5-103	TD761G-10306	None	RE774150002-270

Table 3. Installation of Oversize Bushings

Step No.	Operation Type	Reamer Used	RE7 Guide Bushing Detail No. and Size	Lug Drilled
First Oversize Bushing Installation				
1	Ream Lug (0.5156)	SPT4-RE774150002	Detail 221 (0.5156)	Far
2	Ream Lug (0.6406)	SPT9-RE774150002	Detail 229 (0.6406)	Near
3	Install Bushings Press Fit Using 74D110174 Kit			
4	Ream Bushing (0.3754)	SPT17-74A150602-5001	Detail 231 (0.3754)	Far
5	Ream Bushing (0.5005)	SPT16-74A150602-5001	Detail 220 (0.5005)	Near
Second Oversize Bushing Installation				
6	Ream, Pre-Cold Work (0.5234)	SPT2-RE774150002	Detail 226 (0.5234)	Far
7	Ream, Pre-Cold Work (0.6460)	SPT13-RE774150002	Detail 276 (0.6460)	Near
8	Cold Work - Split Sleeve Method			
9	Second Ream (0.5312)	SPT5-RE774150002	Detail 222 (0.5312)	Far
10	Second Ream (0.6562)	SPT10-RE774150002	Detail 230 (0.6562)	Near
11	Ream Lug (0.5469)	SPT12-RE774150002	Detail 275 (0.5469)	Far
12	Ream Lug (0.6719)	SPT14-RE774150002	Detail 277 (0.6719)	Near
13	Install Bushings Press Fit Using 74D110174 Kit			
14	Ream Bushing (0.3754)	SPT17-74A150602-5001	Detail 231 (0.3754)	Far
15	Ream Bushing (0.5005)	SPT16-74A150602-5001	Detail 220 (0.5005)	Near

3. LOCATING FIXTURE ON OUTER WING. See figure 1.

### Support Equipment Required

None

### Materials Required

None

a. Prepare outer wing and fixture for installation:

(1) Remove spar locator (detail 16) from frame (detail 15) by removing L-pin (detail 240) and hand knob (detail 211), view A.

(2) Remove missile rib locator (detail 27) from frame (detail 15) by removing knurled nuts (detail 194), two places, from bolts (detail 189), and removing L-pins (detail 207), view B.

(3) Remove outboard leading edge flap (A1-F18AC-570-300, WP032 00).

(4) Remove leading edge flap transmission and shaft assembly (A1-F18AC-570-300, WP033 00).

(5) Remove all brackets from forward web of spar by removing bolts and washers, and bagging hardware with bracket it attached to spar.

(6) Remove guided missile launcher LAU-7/A-5 (A1-F18AC-740-300, WP037 00).

(7) Drill out rivet that is plugging the tooling hole in center of forward spar, that will align with locator (detail 16).

b. Raise frame (detail 15) to wing and slide locators (details 17, 18, and 19) onto transmission lugs, view C.

c. Attach locator (detail 16) to frame (detail 15) using L-pin (detail 240) and hand knobs (detail 211), view A.

d. Insert L-pin (detail 214) through locator (detail 16) and into tooling hole in spar, view C.

e. Position locator (detail 27) against missile rib, 74A150625, over bolts (detail 189), and pin in place using L-pin (detail 236), two places, view B.

f. Slide clamp (detail 238) over aft end of locator (detail 27) and missile rib, and secure in place by tightening thumbscrews (detail 237), two places, against locator (detail 27), view B.

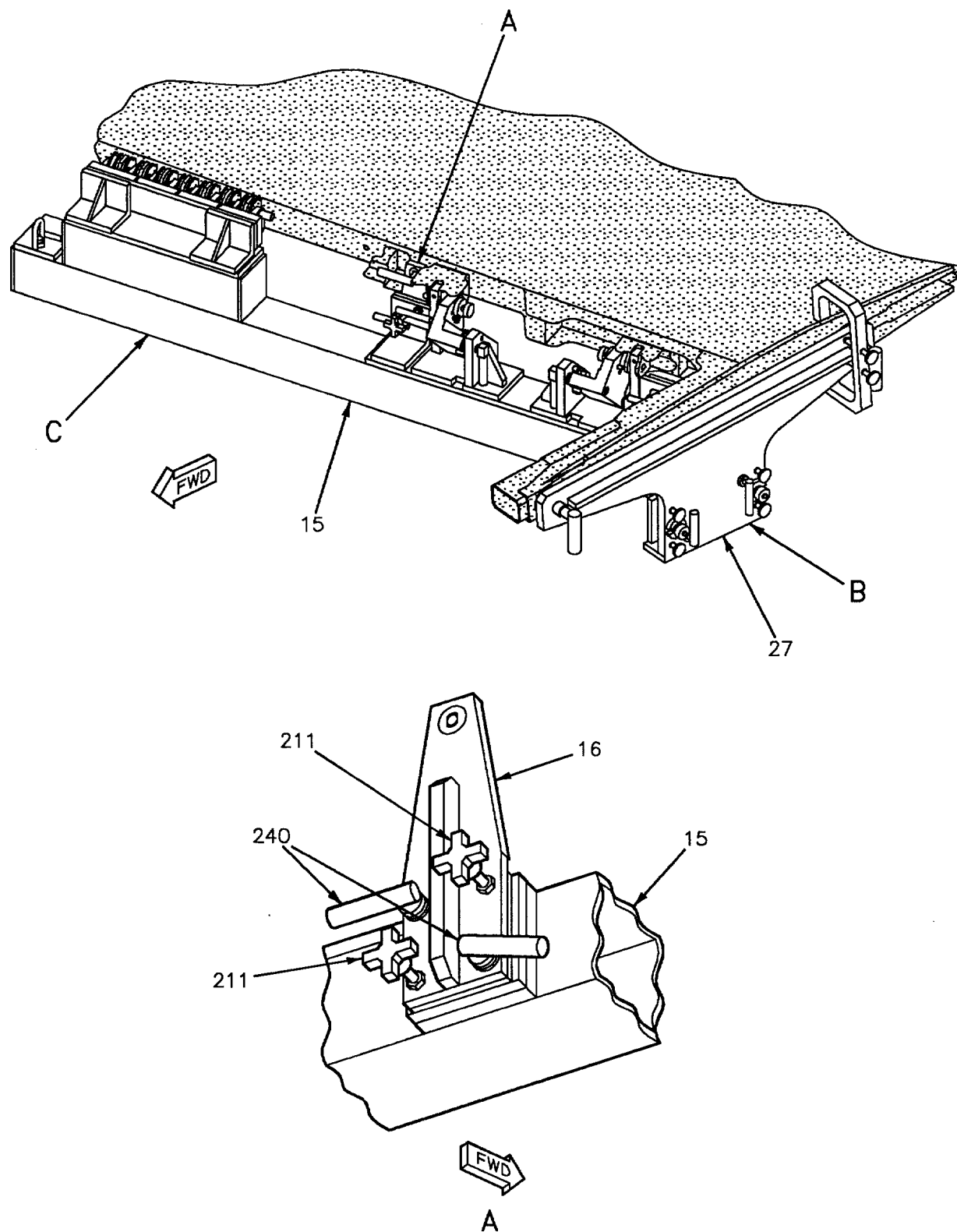
g. Secure forward end of locator (detail 27) against missile rib using C-clamps.

h. Install L-pins (detail 207) through locator (detail 27) and into frame (detail 15), view B.

i. Tighten thumbscrews (detail 190), four places, and thumbscrews (detail 233), two places, against frame (detail 15), view B.

j. Install c-washers (detail 192) and knurled nuts (detail 194) on bolts (detail 189), two places, and tighten, view B.





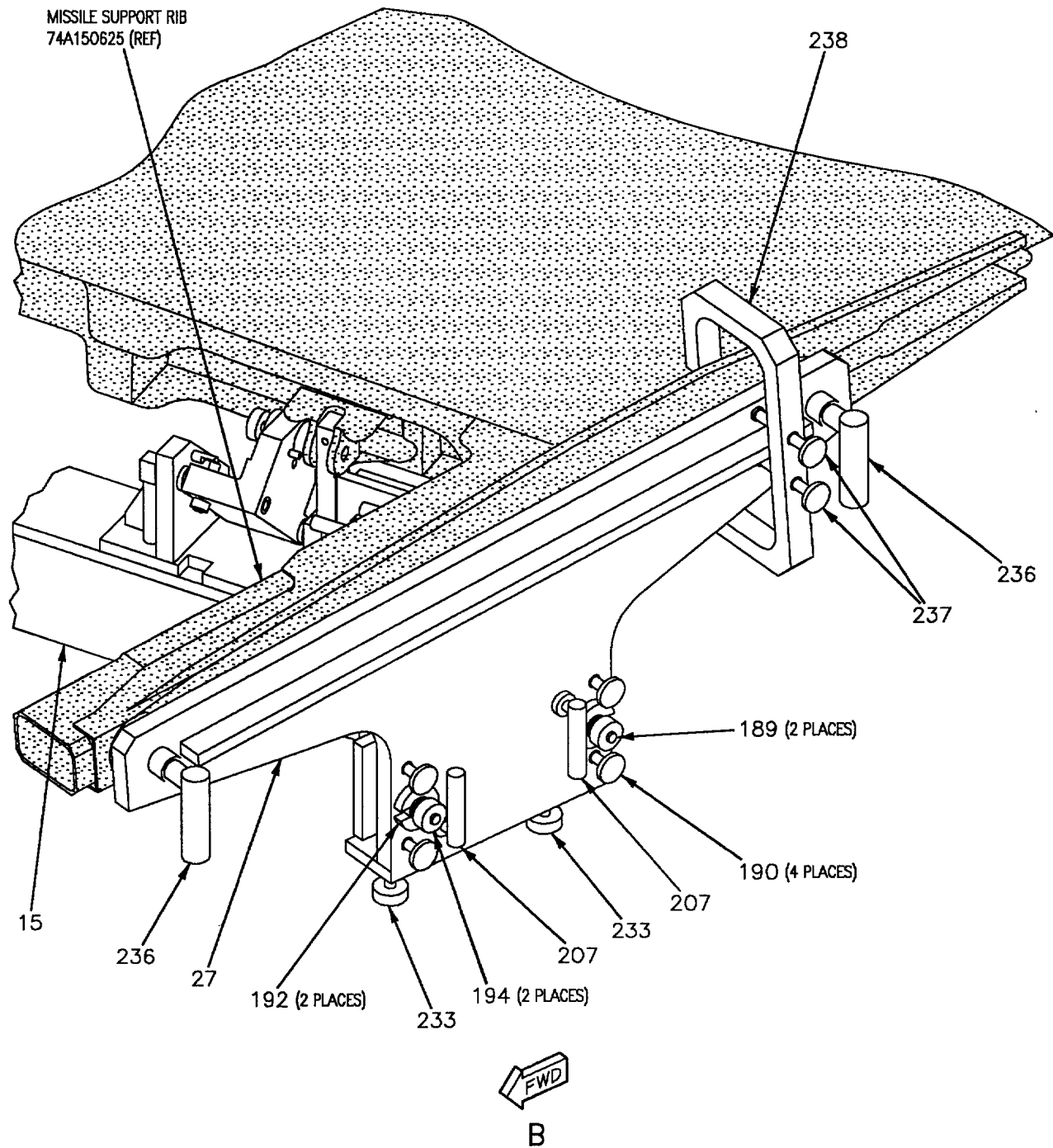


Figure 1. Locating Tool on Outer Wing (Sheet 2)

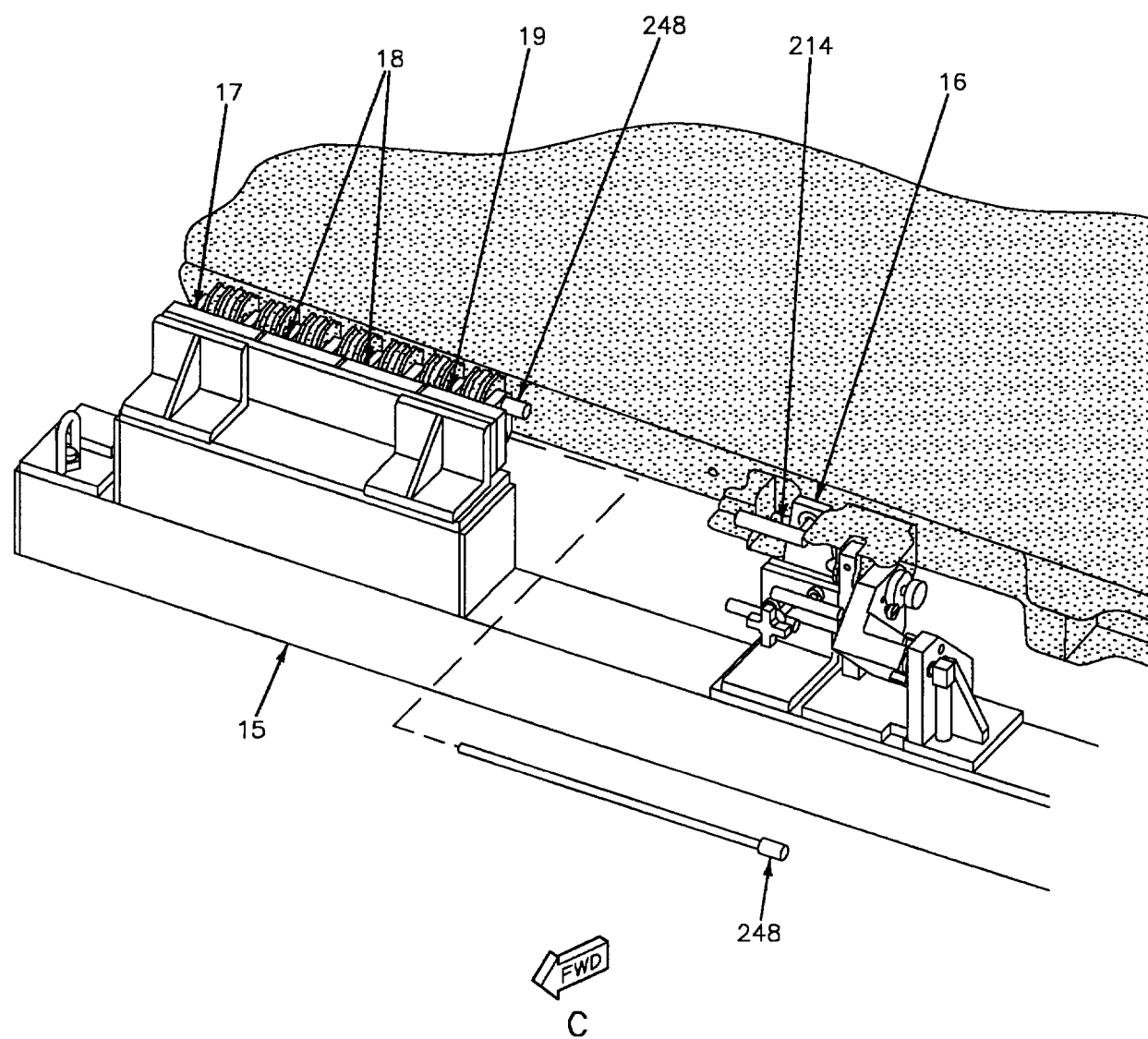


Figure 1. Locating Tool on Outer Wing (Sheet 3)

Detail No.	Name	Function
15	Frame	Supports locators for installing fixture on wing.
16	Locator	Locates fixture to spar.
17, 18, 19	Locator	Locates flap transmission lugs to fixture.
27	Missile Rib Locator	Locates fixture at missile rib.
189	Bolt	Attaches missile rib locator to frame.
190	Thumbscrew	Adjusts and secures missile rib locator to frame.
192	C-Washer	Installs on bolt when attaching missile rib locator.
194	Knurled Nut	Secures missile rib locator to frame.
207	L-Pin	Locates and attaches missile rib locator to frame.
211	Hand Knob	Secures various details in place.
214	L-Pin	Locates fixture to spar tooling hole.
233	Thumbscrew	Adjusts and secures missile rib locator to frame.
236	L-Pin	Pins missile rib locator in place on wing.
237	Thumbscrew	Secures clamp on missile rib.
238	Clamp	Secures missile rib locator to missile rib.
240	L-Pin	Locates and attaches details to frame.
248	Pin	Pins locators to flap transmission lugs.

Figure 1. Locating Tool on Outer Wing (Sheet 4)

4. INSPECTION OF HINGE HALVES, 74A150678 AND 74A150679. See figure 2.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174-1001

### Materials Required

None

a. Visually inspect hinge halves for damaged or worn bushings.

b. Remove damaged or worn bushings using 74D110174 Bushing Removal, Installation and Reaming Tool Set (A1-F18AC-SRM-200, WP004 37).

c. Measure hinge half lug inside diameter and record.

d. Attach locator (detail 28) for inboard hinge half, and locator (detail 29) for outboard hinge half, to angle (detail 198) using L-pins (detail 207) and hand knob (detail 211), view A.

e. Inspect gap between hinge half lug flanges and locator (details 28 and 29) using go-nogo gage (detail 274), view B.

f. If both hinge half flanges are out of tolerance, then replace hinge half per this work package.

g. If either or both hinge half flanges are in tolerance, then replace bushing per this work package.

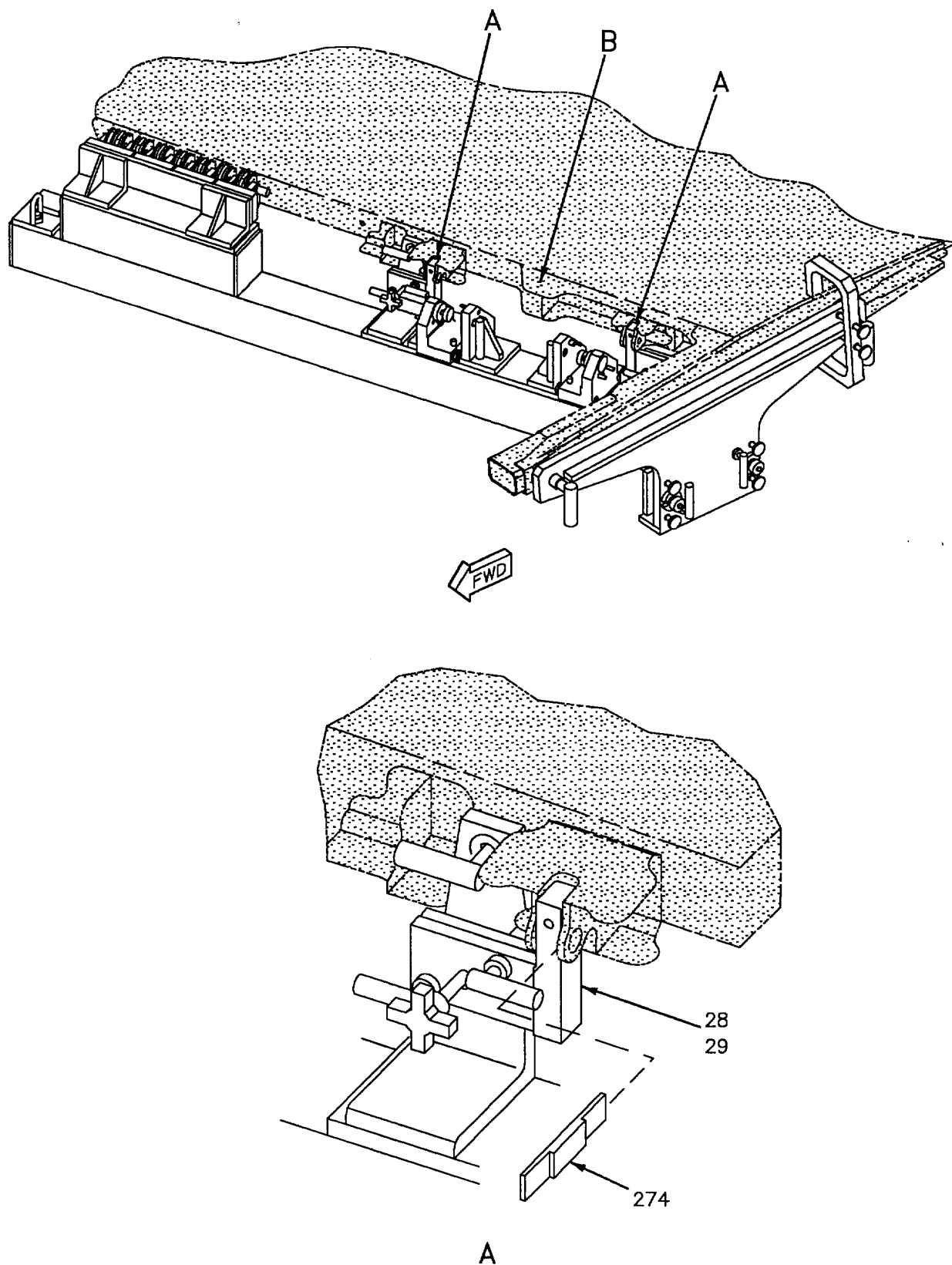


Figure 2. Inspection of Hinge Halves, 74A150678 and 74A150679 (Sheet 1)

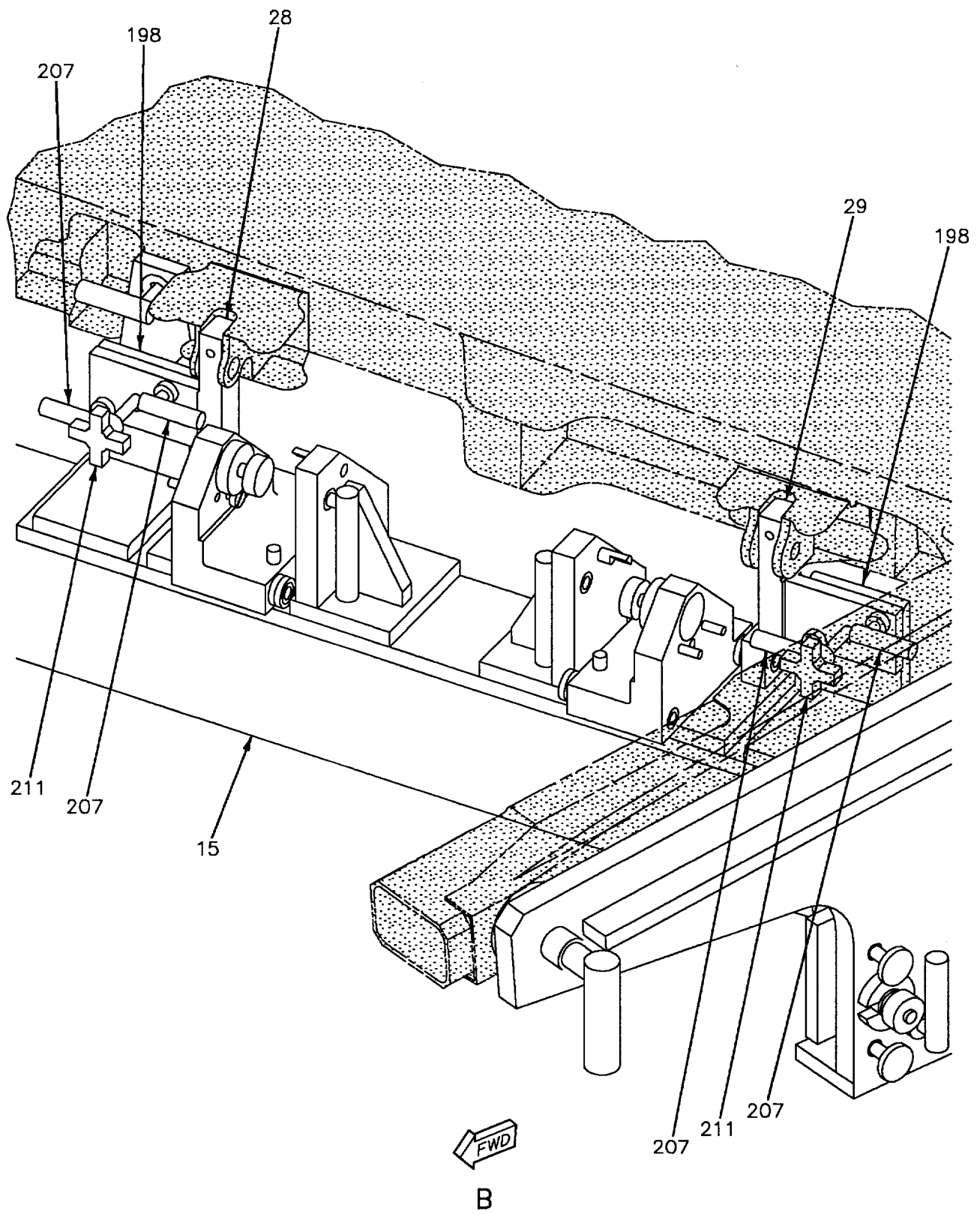


Figure 2. Inspection of Hinge Halves, 74A150678 and 74A150679 (Sheet 2)

Detail No.	Name	Function
28	Locator	Used to locate inboard hinge half.
29	Locator	Used to locate outboard hinge half.
198	Angle	Supports hinge half locators.
207	L-Pin	Locates and attaches locators to angle.
211	Hand Knob	Secures locators to angle.
274	Go-Nogo Gage	Inspects gap for location of details 28 and 29.

Figure 2. Inspection of Hinge Halves, 74A150678 and 74A150679 (Sheet 3)



## 5. REMOVAL AND REPLACEMENT OF DAMAGED HINGE HALVES. See figure 3.



### Support Equipment Required

None

### Materials Required

Nomenclature	Specification or Part Number
1/4-28 CRES Threaded Stock (for Blind Hole Transfer Punch)	-
301 CRES (for Punch Installation Tool)	MIL-S-5059 Comp 301, Cond. 1/2 Hard, 0.050 Thick
Epoxy Primer	MIL-P-23377, Type 2, Class 1
Sealing Compound	MIL-S-83430
Shim Material	5052-H39, 0.032 Thick

a. Remove wire bundle from area of inboard hinge half, and from missile rib and outboard hinge half (A1-F18A( )-WDM-000).

b. Remove damaged hinge half from spar by removing bolts, views A and B, as applicable.

c. Fabricate blind hole transfer punch from bolt, view C. Quantity as required, four for inboard hinge half, two for outboard hinge half.

d. Fabricate transfer punch installation tool, view D.

e. Thread transfer bolts into plate nuts in spar using punch installation tool. Adjust bolts so tip protrudes 0.005 to 0.010 inches from surface of spar web.

f. Position replacement hinge half in place on spar.

g. Retract locator (detail 23 or 24) into position by using L-pin (detail 204); see view E.

h. Attach locator (detail 22 or 25) to angle (detail 198) using L-pins (detail 207) and hand knob (detail 211), view E.

i. Install bushing (detail 199) and thumbscrew (detail 210) in locator (detail 23 or 24), view E.

Excessive tightening of thumbscrews (details 107 and 210) or tapping with hammer may damage nutplates on aft side of spar web.

j. Tighten thumbscrews (details 107 and 210) to hold hinge half in place, view E.

k. Inspect distance between hinge half and pins (detail 206) using gage (detail 215), view F.

l. Locate replacement hinge half to get  $0.250 \pm 0.010$  tolerance between pin (detail 206) and gage (detail 215) using the gage (detail 215). If required, perform step j to relocate hinge half.

m. Tap mounting flange with brass punch and small hammer to transfer location of center point of attach holes onto replacement hinge half.

n. Loosen thumbscrews (details 107 and 210). Remove L-pins (detail 207) and hand knob (detail 211). Remove locator (detail 22 or 25) from angle (detail 198).

o. Remove bushing detail (detail 199). Move locator (detail 23 or 24) into retracted position by removing L-pin (detail 204); see view E.

p. Remove replacement hinge half from location on spar.

q. Drill and ream  $0.250 +0.006, -0.000$  inch holes in replacement hinge half.

r. Temporarily install replacement hinge half onto spar using the bolts removed in step b.

s. Determine gap distance for shims as applicable; see view B. Obtain 5052-H39 shim material. Trim shim material to flush with outer edge of hinge half and peel as required.

t. Transfer holes from spar flanges and seals to replacement hinge half and shims (as required).

u. Remove bolts and hinge half. For inboard hinge, drill and ream all holes to  $0.250 +0.006/-0.000$  diameter. For outboard hinge, drill and ream holes to diameters shown in view G (ream shims in place as applicable). Deburr holes.



Epoxy Primer

21

v. Clean, coat, and prime exposed surfaces of replacement hinge half and shims (as applicable) using MIL-P-23377, Type 2, Class 1 primer (A1-F18AC-SRM-500, WP011 00).



Sealing Compound

6

w. Fay seal mating surfaces of replacement hinge, shims, and spar surfaces using MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00).

x. Install hinge half and shims (as applicable) onto spar using bolts from step b. Torque bolts 50 to 70 inch-pounds. For bolt information (A1-F18AC-SRM-410, FIG008 00).

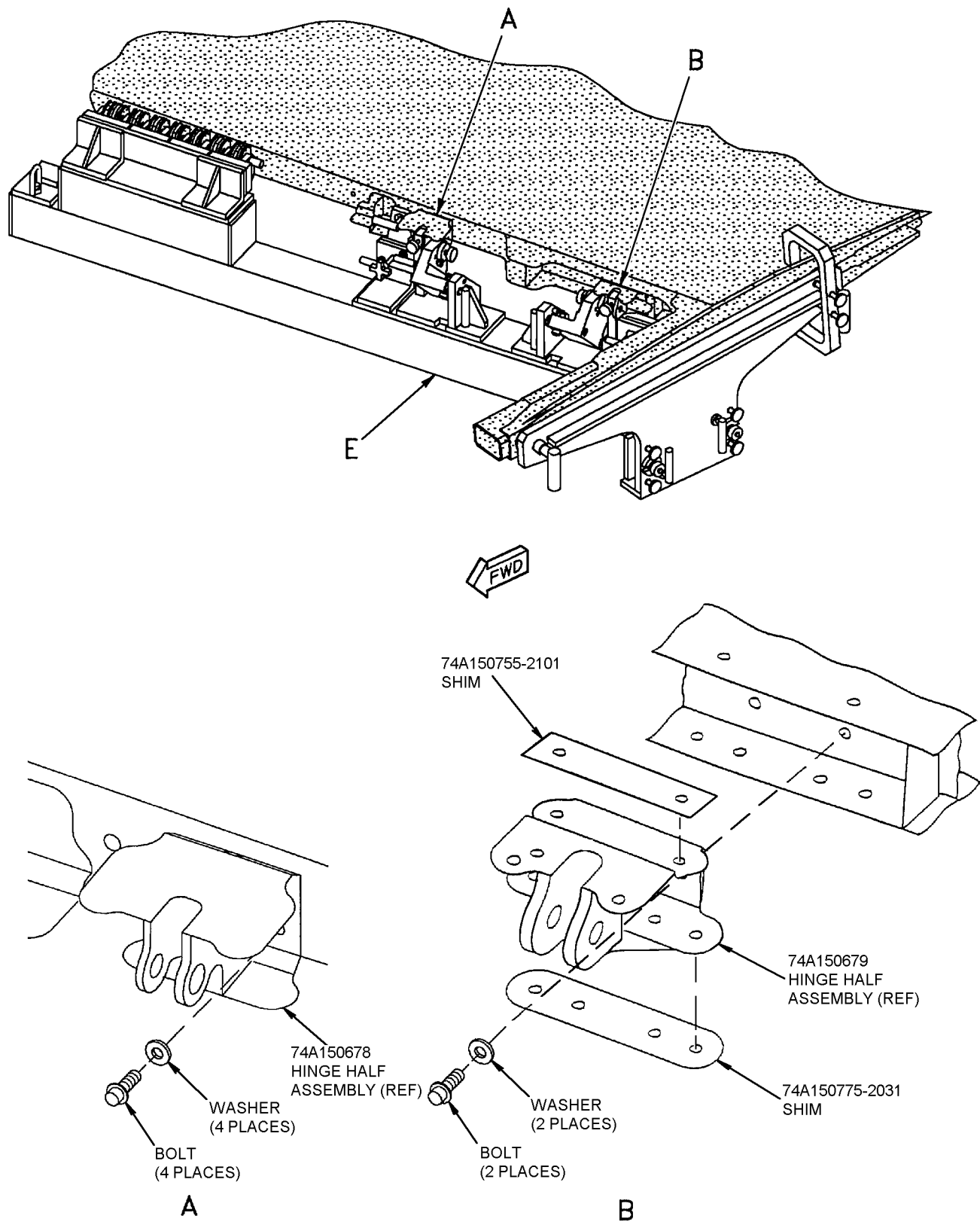
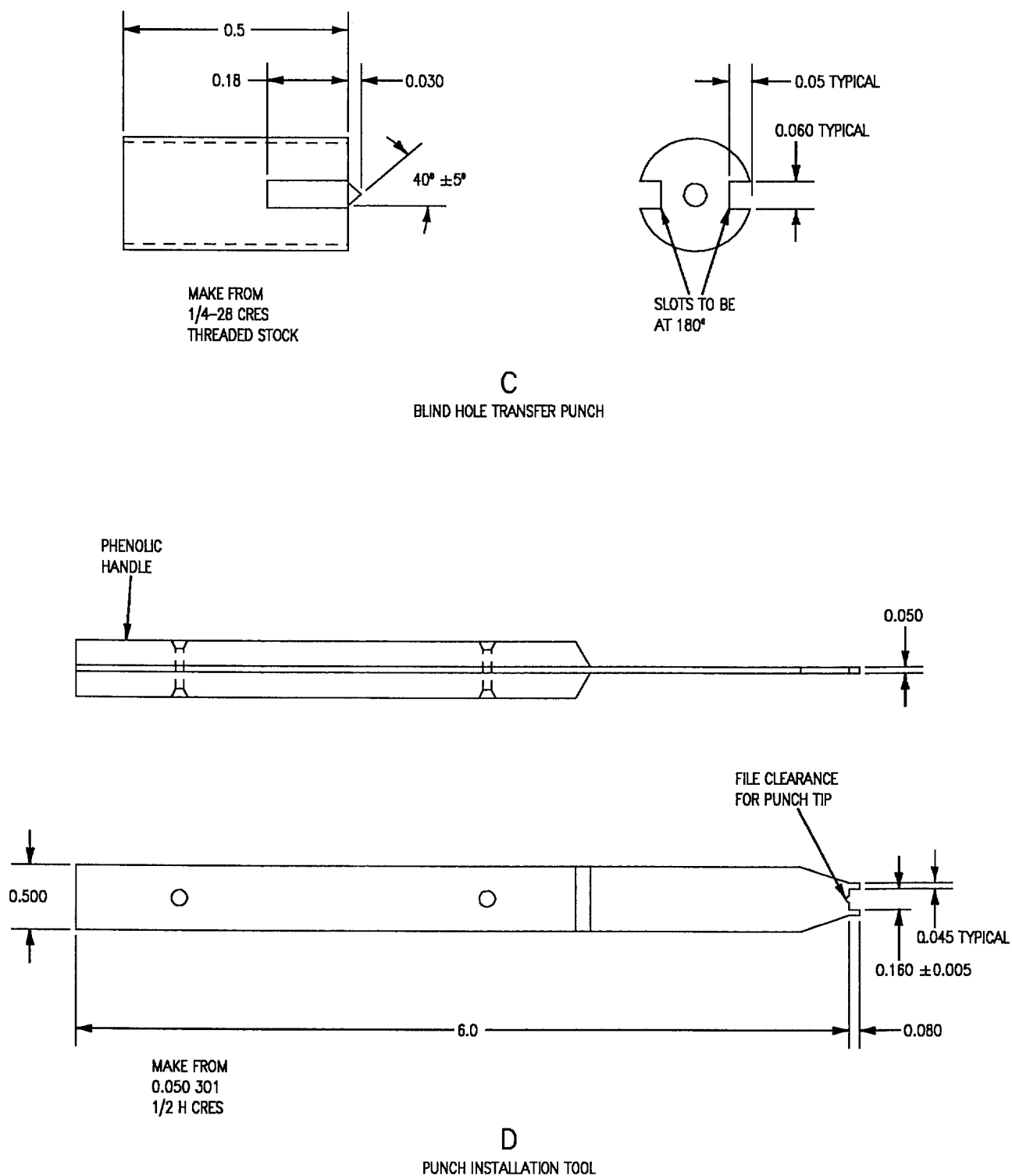
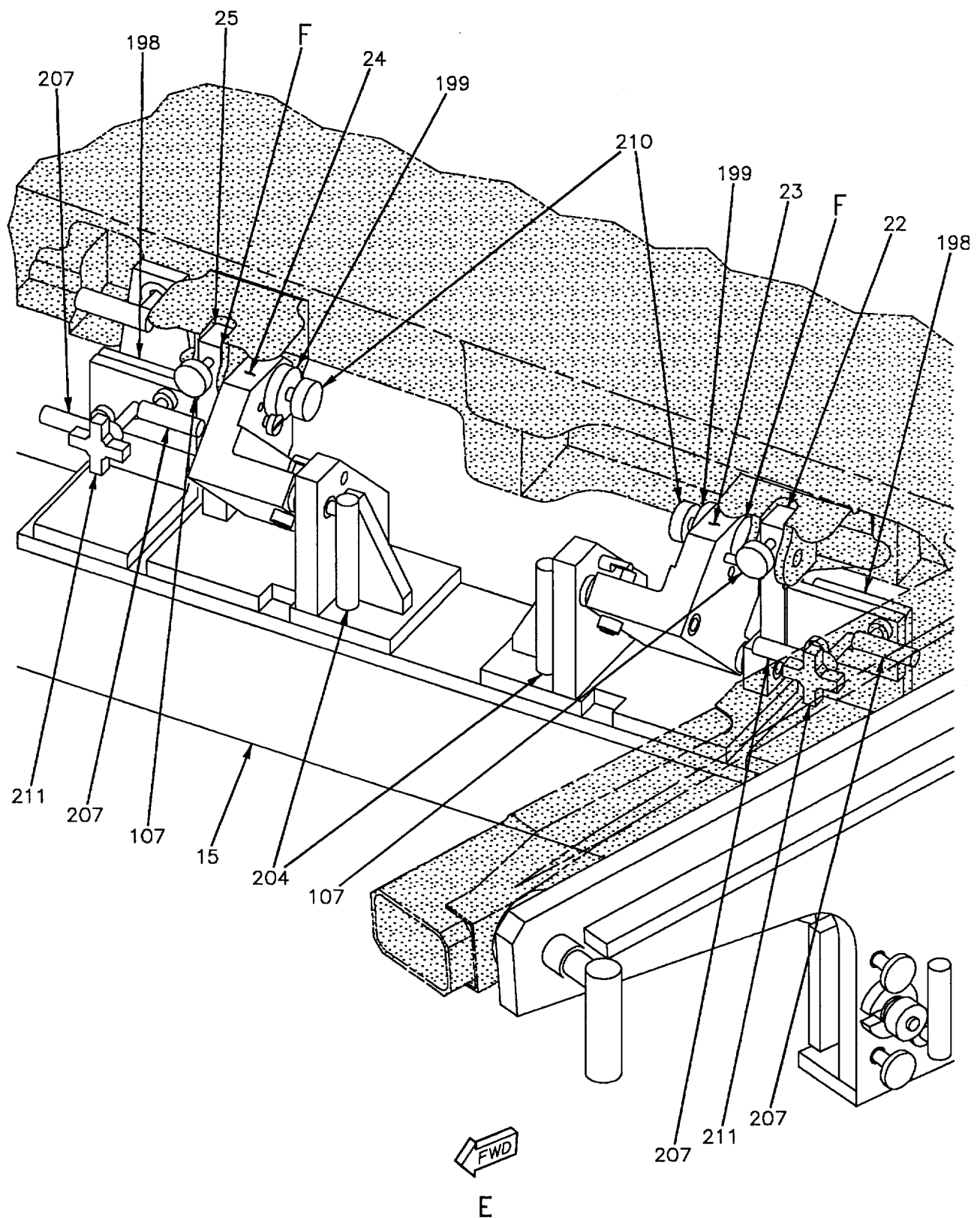


Figure 3. Removal and Replacement of Damaged Hinge Halves (Sheet 1)



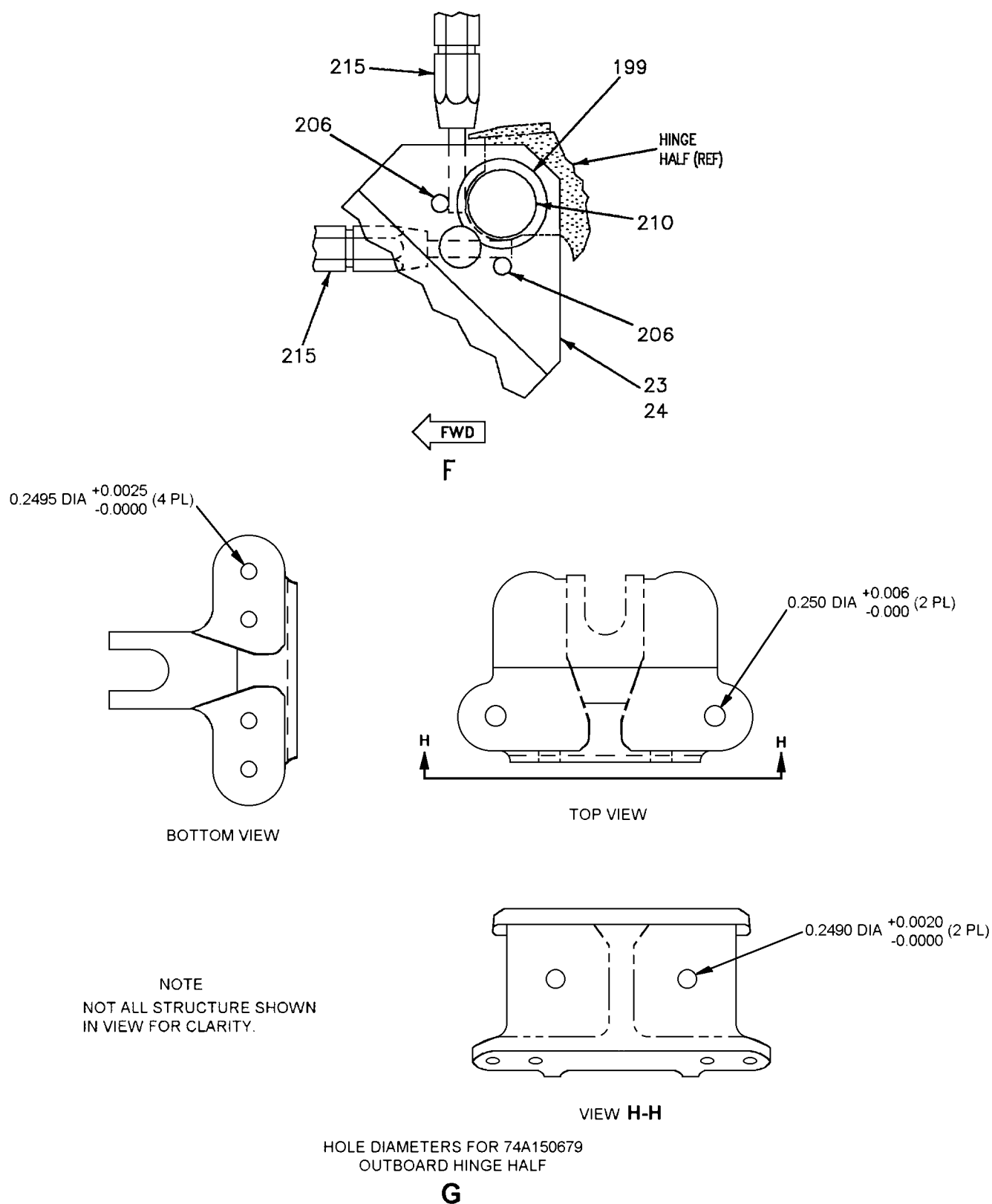
12030302

Figure 3. Removal and Replacement of Damaged Hinge Halves (Sheet 2)



12030303

Figure 3. Removal and Replacement of Damaged Hinge Halves (Sheet 3)



12030304

Figure 3. Removal and Replacement of Damaged Hinge Halves (Sheet 4)

Detail No.	Name	Function
15	Frame	Supports details for removal and replacement of hinge halves.
22	Locator	Used to locate outboard hinge half.
23, 24	Locator	Locates position of replacement hinge half.
25	Locator	Used to locate inboard hinge half.
107, 210	Thumbscrew	Secures replacement hinge half in place.
198	Angle	Supports hinge half locators.
199	Bushing	Installs thumbscrew to hold hinge half in place.
204	L-Pin	Locates and secures locators in retracted position.
206	Pin	Used to inspect location of hinge half.
207	L-Pin	Locates and attaches locators to angle.
211	Hand Knob	Secures locator to angle.
215	Gage	Inspects for correct gap between hinge half and pin.

Figure 3. Removal and Replacement of Damaged Hinge Halves (Sheet 5)

6. DRILLING HOLES IN HINGE HALVES, 74A150678 AND 74A150679. See figure 4.

## Support Equipment Required

None

## Materials Required

None

a. If one of the hinges halves is not being drilled, then pin that hinge half using pin (detail 271).

b. Move locator (details 23 or 24) into extended position by installing L-pin (detail 204), view A.

c. Insert applicable drill bushing into locator (details 23 or 24) and secure using lock screw (detail 202), view A. See Table 1 for applicable bushing detail numbers.

d. Assemble applicable cutter and extension, view A. See Table 1 for applicable cutter numbers.

e. Drill and ream bushing holes in hinge half in sequence given in Table 1.

f. Coldwork drilled holes in hinge half lugs. See Table 2 for sequence and tools.



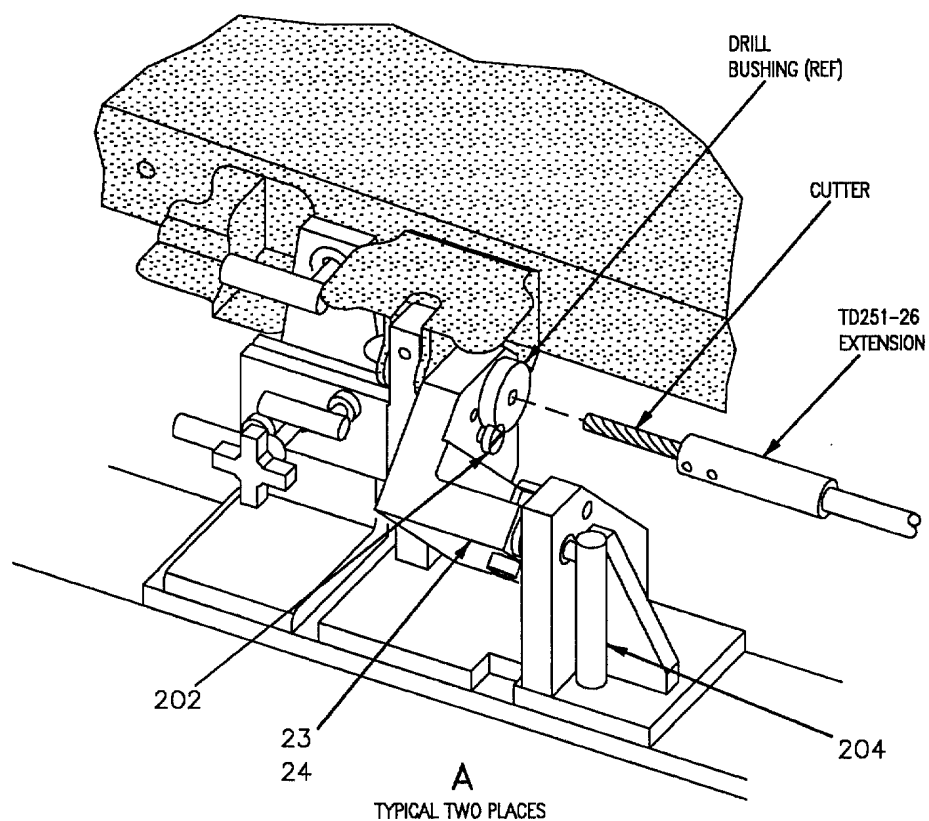
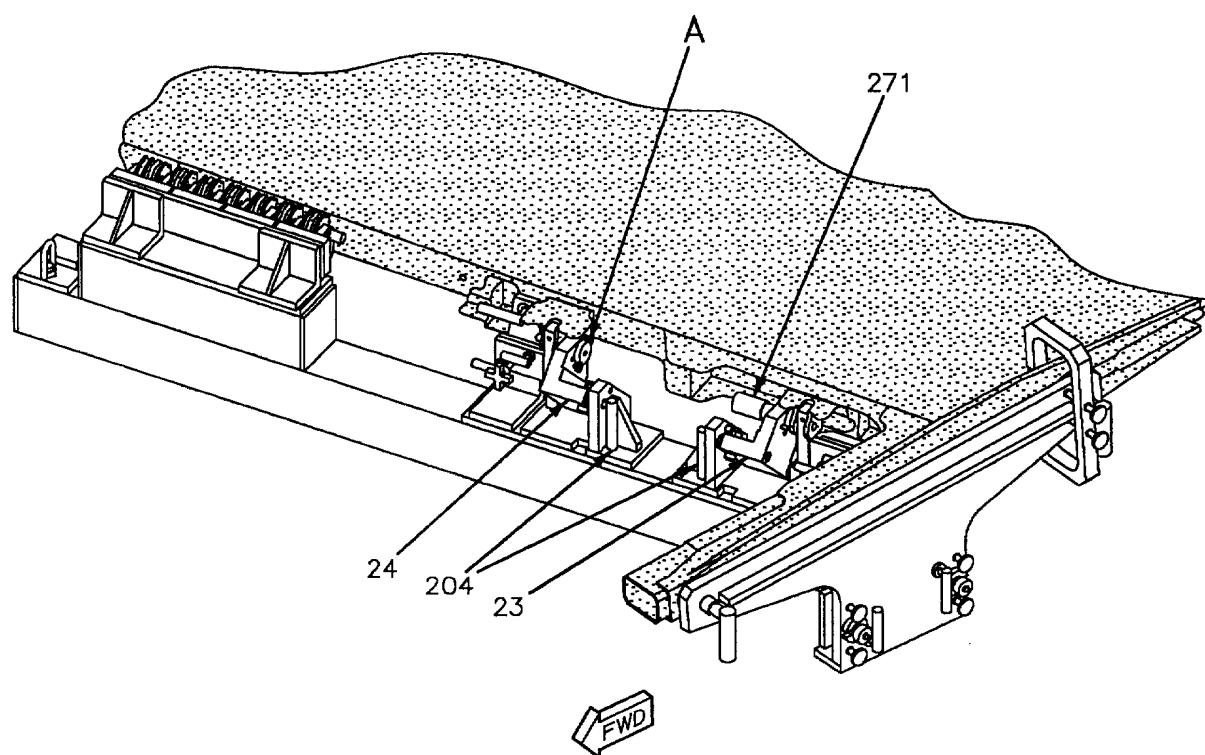


Figure 4. Drilling Holes in Hinge Halves, 74A150678 and 74A150679 (Sheet 1)

Detail No.	Name	Function
23, 24	Locator	Locates position of replacement hinge.
202	Lockscrew	Secures drill bushing in locator.
204	L-Pin	Secures locator in retracted position.
271	Pin	Pins tool at hinge half bushing that is not being drilled.

Figure 4. Drilling Holes in Hinge Halves, 74A150678 and 74A150679 (Sheet 2)

7. INSTALLATION OF BUSHINGS. See figure 5.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Bushing Removal, Installation, and Reaming Tool Set	74D110174

Materials Required

None

a. Install bushings in drilled hinge half holes using the 74D110174 Bushing Removal, Installation, and Reaming Tool Set (A1-F18AC-SRM-200, WP004 37). For bushing parts information (A1-F18AC-SRM-410, FIG 008 00).

b. Ream bushings per sequence instructions given in Table 1.

c. Install pin (detail 271) through locator (detail 23 or 24) and into drilled bushing.

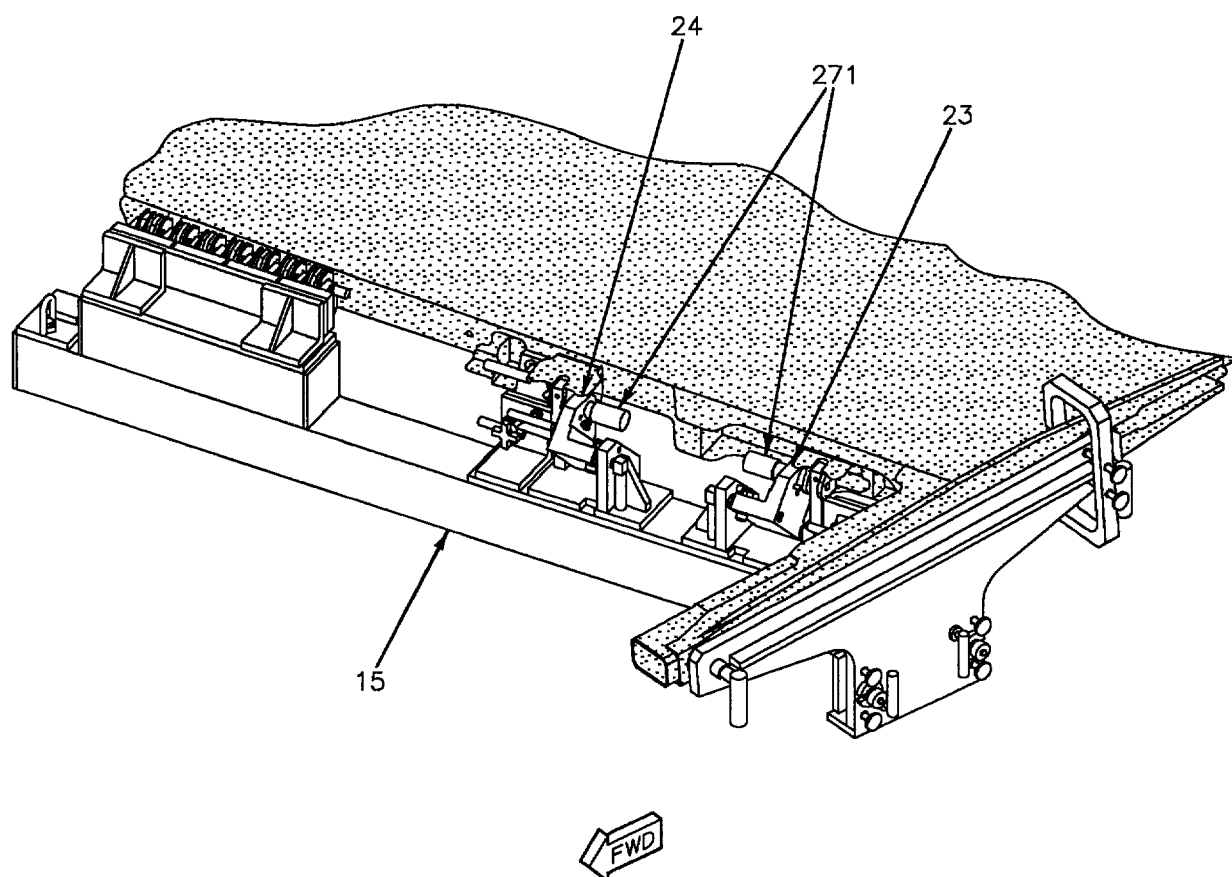


Figure 5. Installation of Bushings (Sheet 1)

Detail No.	Name	Function
15	Frame	Supports details for removal and replacement of hinge halves.
23, 24	Locator	Locates position of replacement hinge.
271	Pin	Pins drilled bushings in place.

Figure 5. Installation of Bushings (Sheet 2)

## 8. REAMING HINGE HALVES FOR OVERSIZE BUSHINGS. See figure 6.

### Support Equipment Required

None

### Materials Required

None

a. Install fixture on outer wing per this work package.

b. Inspect distance between hinge half and pin (detail 206) using gage (detail 215), view A.

c. Remove damaged bushings per this work package.

d. Inspect for required clean up by inserting pin (detail 272) for nominal size hole, or pin (detail 273) for first oversize hole, through locator (detail 23 or 24) and into hinge half hole.

e. If one of the hinge halves is not being reamed, then pin that hinge half using pin (detail 272) for nominal size, or pin (detail 273) for first oversize.

f. Ream bushing holes in hinge half in the sequence given in Table 3.

g. Coldwork reamed holes in hinge half lugs. See Table 2 for sequence and tools.

h. Install and ream oversize bushings per this work package.



Detail No.	Name	Function
15	Frame	Supports details for installing tool on wing.
23, 24	Locator	Locates position of replacement hinge half.
206	Pin	Used to inspect location of hinge half.
215	Gage	Inspects for correct gap between hinge half and pin.
272	Pin	Inspects and pins hinge half for nominal size hole.
273	Pin	Inspects and pins hinge half for first oversize hole.

Figure 6. Reaming Hinge Halves for Oversize Bushings (Sheet 2)



## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING EXTERNAL METAL DOORS, UPPER

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Form In Place Sealing .....	WP010 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Wing, Aircraft, Assy of .....	FIG 004 00
Flap, Wing Leading Edge - Outbd, Instl of .....	FIG 007 05
Structure Assy - Wing Outer .....	FIG 008 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Locating Blind Holes and Trim Lines .....	WP004 03
Gang Channel and Plate Nut Identification and Repair .....	WP004 05
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509
Heli-Coil Inserts - General Installation .....	NAVAIR 02-1-19

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## Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/18 AFC 27	-	Leading Edge Flap/Control Stick Changes, Incorporation of (ECP MDA-F/A18-00044C2)	1 Mar 87	-

## Support Equipment Required

None

## Materials Required

None

4. **REPAIRABLE DAMAGE.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

## NOTE

1. **DAMAGE EVALUATION.** See figures 1 and 2.

2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

3. **NEGLIGIBLE DAMAGE.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

The limits in table 2 apply after blending the damage.

a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge cleanup hole at least eight repair fasteners diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, over structure, only one repair per land.

e. Dents exceeding limits in table 1 must be repaired.

## 5. REPAIRS.

6. Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repair type definition are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

### WARNING

Installation of an overweight repair could cause failure of the doors, resulting in loss of life or injury. Engineering approval of repairs on doors is required.

## 7. PERMANENT REPAIRS.

8. **Scratches, Nicks, Gouges, or Corrosion.** Blending scratches, nicks, or corrosion (A1-F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair aluminum sheet. Refinish blended areas (A1-F18AC-SRM- 500, WP027 00).

a. Scratches - make crack or edge repairs.

b. Nicks, gouges, or corrosion - make hole or edge repair.

## 9. Cracks.

a. In repair zones A3 and A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Rout out crack in repair zone A3. Cut out crack in smallest diameter circle in repair zone A4.

(2) In repair zone A3, install a lap patch.

(3) In repair zone A4, install a type two flush or lap patch.

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair cracks free of structure or land areas in aluminum sheet 0.050 thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A3 and A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A3 and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 10. Holes.

a. In repair zones A3 and A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A3, install a type one flush or lap patch. In repair zone A4, install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair hole free of structure or land area in aluminum sheet 0.050 thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A3 and A4, repair hole across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A3 and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

11. **Edge.** In repair zones A3 and A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

12. **Dents.**

a. In repair zones A3 and A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A3, install a type one flush or lap patch. In repair zone A4, install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair dents free of structure or land areas in aluminum sheet 0.050 thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A3 and A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A3 and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

Table 1. Negligible Damage Limits





































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1)	Closure Zone B4	0.090	0.0006	0.0006	100%	0.045	
Fig 1 (2)	Seal Zone A3	0.060	0.002	0.002	100%	0.030	
	Zone A3	0.100	0.002	0.002	100%		
Fig 1 (3)	Door Zone A4	0.040	0.002	0.0006	100%	0.020	
	Zone A4	0.080	0.002	0.0006	100%	0.040	
	Zone A4	0.125	0.0006	0.0006	100%	0.060	10% 
Fig 1 (4)	Seal Zone A3	0.040	0.002	0.002	100%	0.020	
	Zone B3	0.040	0.0006	0.0006	100%	0.020	
	Zone B3	0.052	0.0006	0.0006	100%	0.026	
	Zone B3	0.100	0.0006	0.0006	100%		
	Zone B3	0.140	0.0006	0.0006	100%	0.070	
Fig 1 (5)	Seal Zone A4	0.040	0.002	0.0006	100%	0.020	
	Zone A4	0.052	0.002	0.0006	100%	0.026	
	Zone A4	0.100	0.0006	0.0006	100%	0.050	
Fig 1 (6)	Seal Zone A4	0.040	0.002	0.0006	100%	0.020	
	Zone A4	0.100	0.002	0.0006	100%	0.050	
Fig 1 (7)	Seal Zone A3	0.100	0.002	0.002	100%		
	Zone B3	0.040	0.0006	0.0006	100%	0.020	
Fig 1 (8)	Seal Zone A3	0.040	0.002	0.002	100%	0.020	
	Zone B3	0.040	0.0006	0.0006	100%	0.020	
	Zone B3	0.052	0.0006	0.0006	100%	0.026	
	Zone B3	0.100	0.0006	0.0006	100%		
	Zone B3	0.120	0.0006	0.0006	100%		
	Zone B3	0.140	0.0006	0.0006	100%		
	Zone C3	0.140	0.0006	0.0006	100%		
Fig 1 (9)	Seal Zone A3	0.100	0.002	0.002	100%		
	Zone C3	0.032	0.0006	0.0006	100%	0.016	

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (10)	Seal						
	Zone A4	0.040	0.008	0.0006	100%	0.020	
	Zone A4	0.060	0.0006	0.0006	100%	0.030	10%
	Zone A4	0.100	0.002	0.0006	100%		
Fig 1 (11)	Seal						
	Zone A4	0.030	0.002	0.0006	100%	0.015	
	Zone A4	0.060	0.002	0.0006	100%	0.035	
	Zone A4	0.100	0.0006	0.0006	100%		10%
Fig 1 (12)	Seal						
	Zone A3	0.100	0.002	0.002	100%		
	Zone C3	0.034	0.0006	0.0006	100%	0.017	
Fig 1 (13)	Seal						
	Zone B3	0.060	0.0006	0.0006	100%	0.030	
	Zone B3	0.140	0.0006	0.0006	100%		
	Zone C3	0.080	0.0006	0.0006	100%		
	Zone C3	0.140	0.0006	0.0006	100%		
Fig 1 (26)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	
Fig 1 (18)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	
Fig 1 (20)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	
Fig 1 (22)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	
Fig 1 (24)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	
Fig 1 (29)	Seal						
Zone A3	0.071	0.002	0.002	100%	0.030	N/A	

NOTE

None allowed.

Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Area	Depth	Area	Depth
Fig 1 (1)	Closure Zone B4	0.090		0.018	0.018	10%	0.018	10%
Fig 1 (2)	Seal Zone A3	0.060	N/A	0.010	0.010	90%	0.010	90%
	Zone A3	0.100	0.050	0.012	0.012	90%	0.012	90%
Fig 1 (3)	Door Zone A4	0.040	N/A	0.008	0.008	10%	0.008	10%
	Zone A4	0.080	0.060	0.016	0.016	10%	0.016	10%
	Zone A4	0.125	0.060	0.025	0.025	10%	0.025	10%
Fig 1 (4)	Seal Zone A3	0.040	N/A	0.008	0.008	100%	0.008	100%
	Zone B3	0.040	N/A	0.008	0.008	100%	0.008	100%
	Zone B3	0.052	0.002	0.010	0.010	70%	0.010	70%
	Zone B3	0.100	0.0006	0.015	0.015	40%	0.015	40%
	Zone B3	0.140	N/A	0.025	0.025	60%	0.025	60%
Fig 1 (5) 10% 10% 10%	Seal Zone A4	0.040	0.060	0.008	0.008	10%	0.008	10%
	Zone A4	0.052	0.060	0.010	0.010	10%	0.010	10%
	Zone A4	0.100	0.060	0.020	0.020	10%	0.020	10%
Fig 1 (6)	Seal Zone A4	0.040	0.060	0.008	0.008	10%	0.008	10%
	Zone A4	0.100	0.060	0.020	0.020	10%	0.020	10%
Fig 1 (7)	Seal Zone A3	0.100	0.050	0.020	0.020	70%	0.020	70%
	Zone B3	0.040	0.050	0.008	0.008	70%	0.008	70%
Fig 1 (8)	Seal Zone A3	0.040	N/A	0.008	0.008	100%	0.008	100%
	Zone B3	0.040	N/A	0.008	0.008	100%	0.008	100%
	Zone B3	0.052	0.050	0.010	0.010	80%	0.010	80%
	Zone B3	0.100	N/A	0.020	0.020	50%	0.020	50%
	Zone B3	0.120	0.0006	0.020	0.020	50%	0.020	50%
	Zone B3	0.140	0.0006	0.012	0.012	70%	0.012	50%
	Zone C3	0.140	0.0006	0.012	0.012	70%	0.012	70%
Fig 1 (9)	Seal Zone A3	0.100	0.050	0.020	0.020	50%	0.020	50%
	Zone C3	0.032	0.050	0.001	0.001	70%	0.001	70%





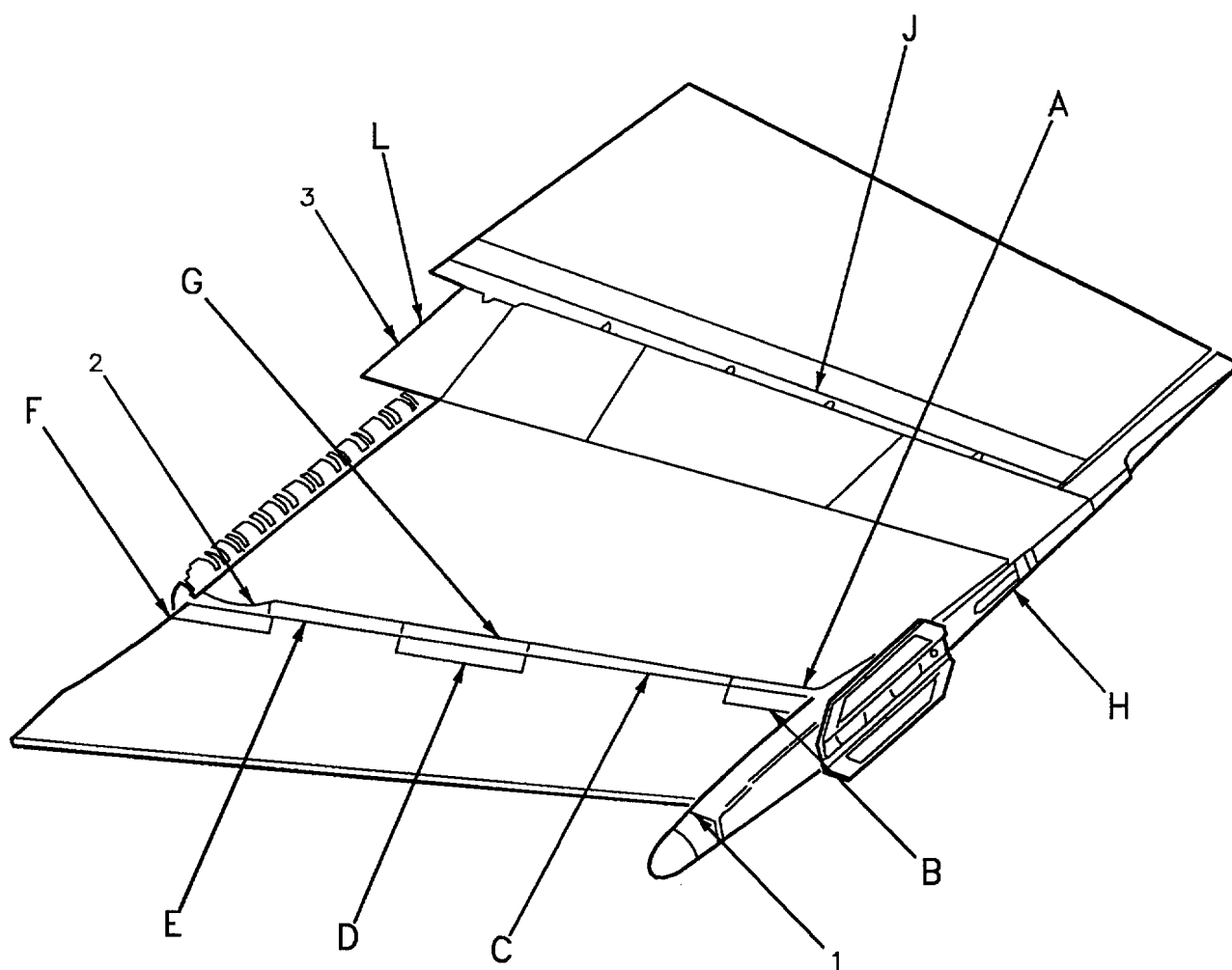
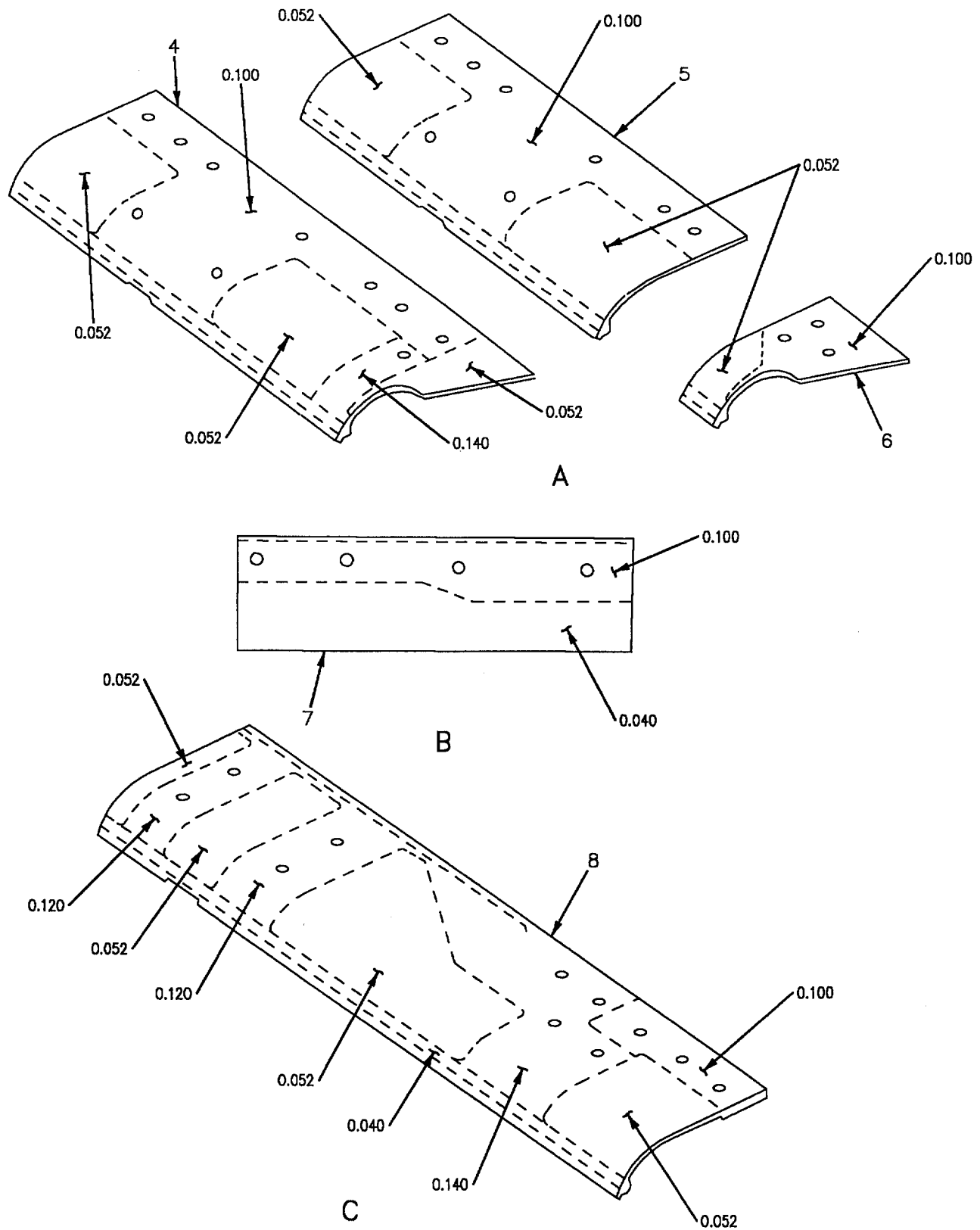


Figure 1. Material Index (Sheet 1)



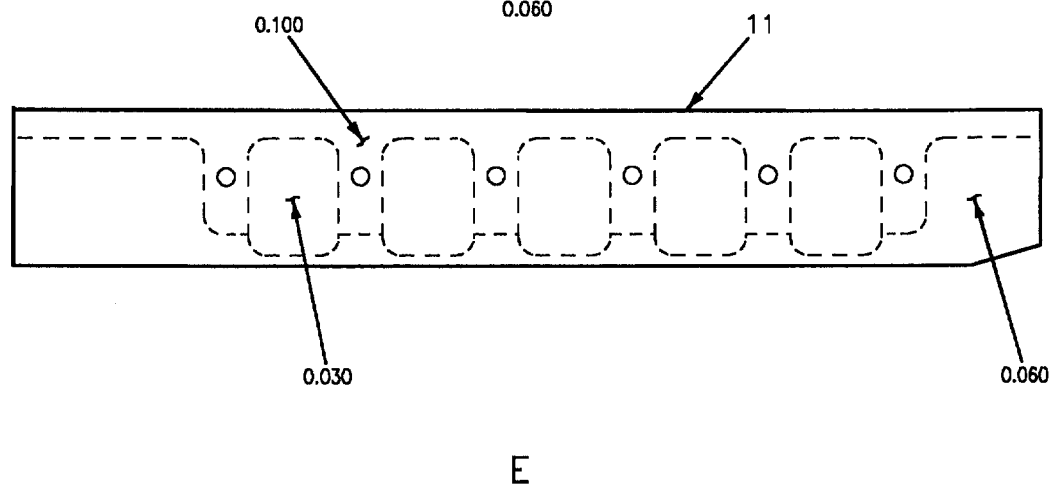
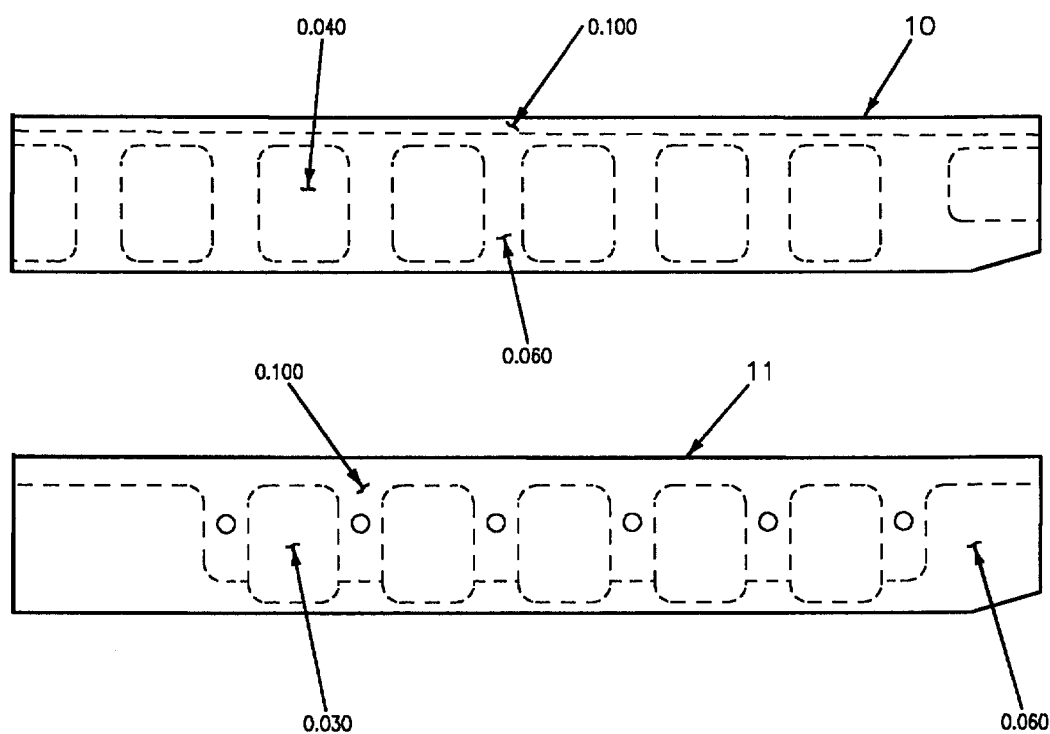
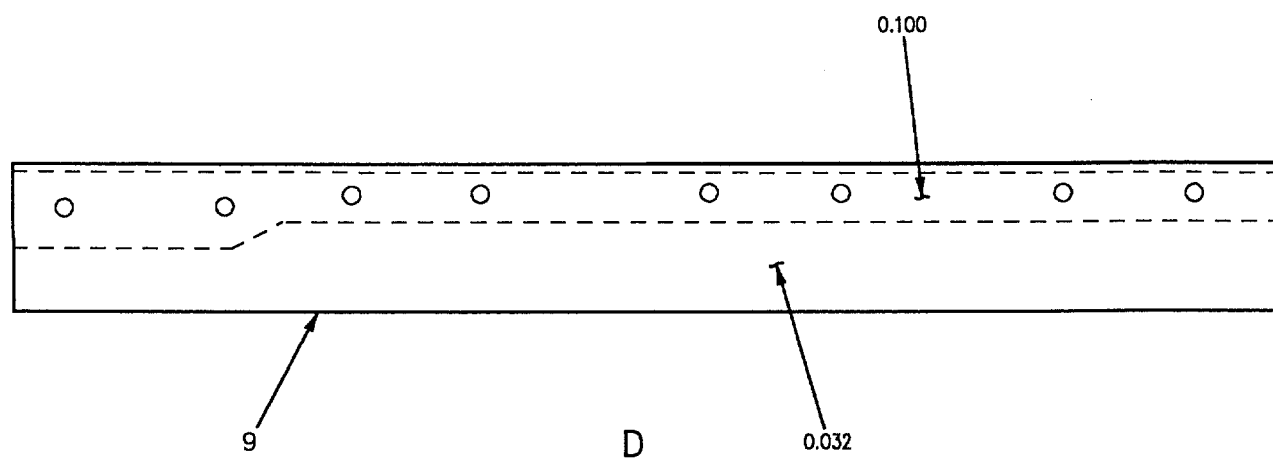


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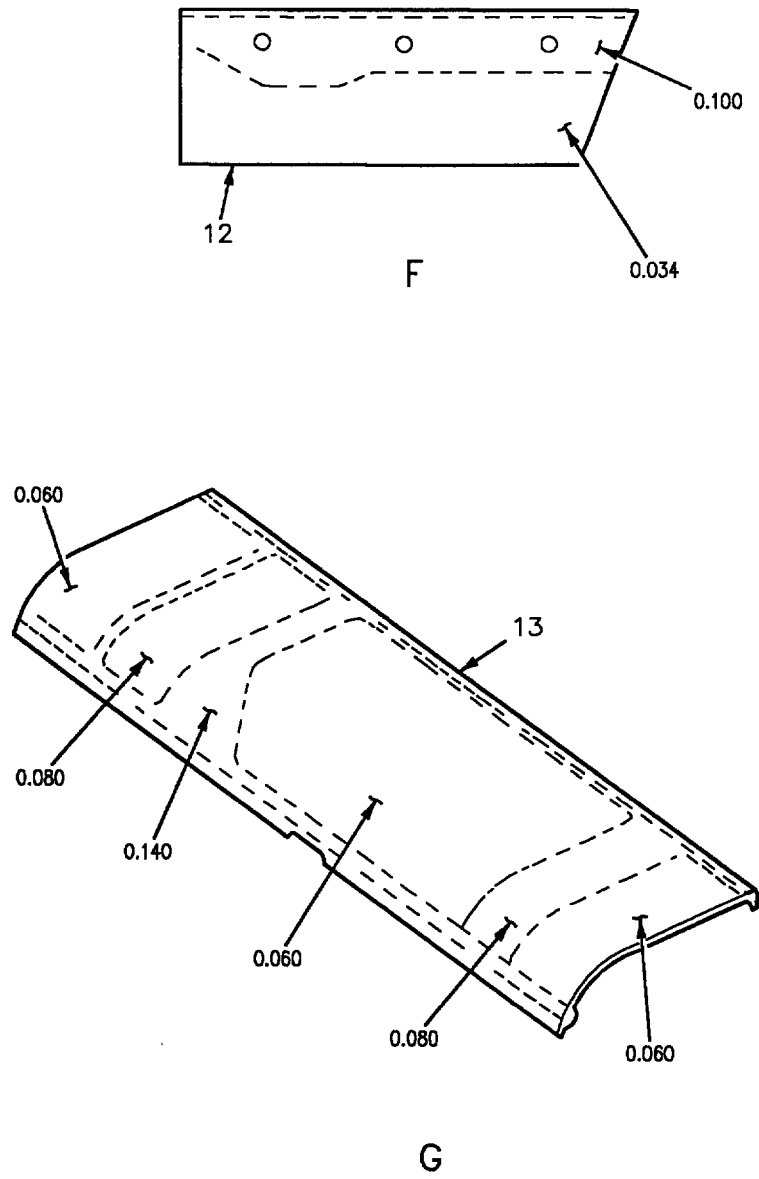


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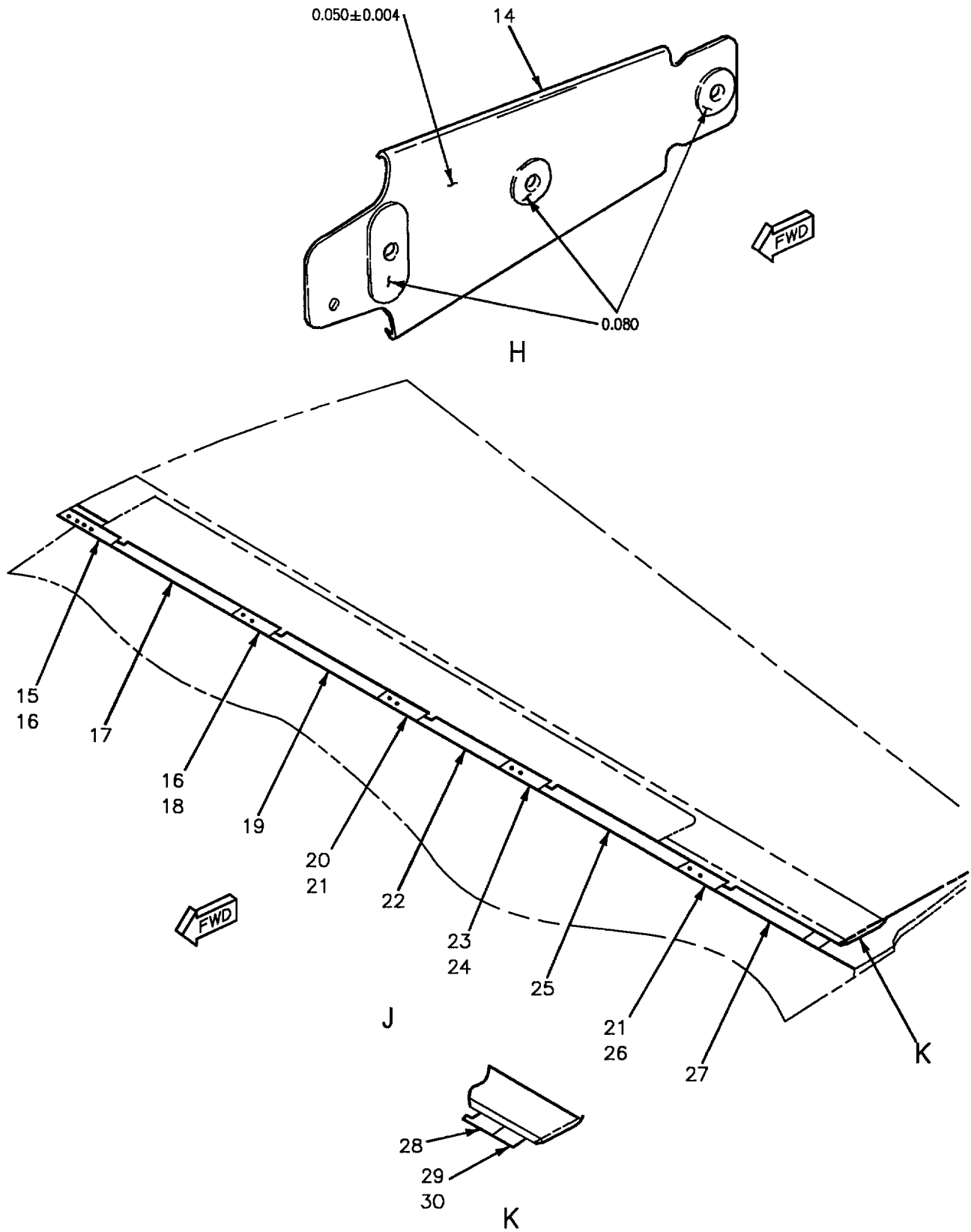


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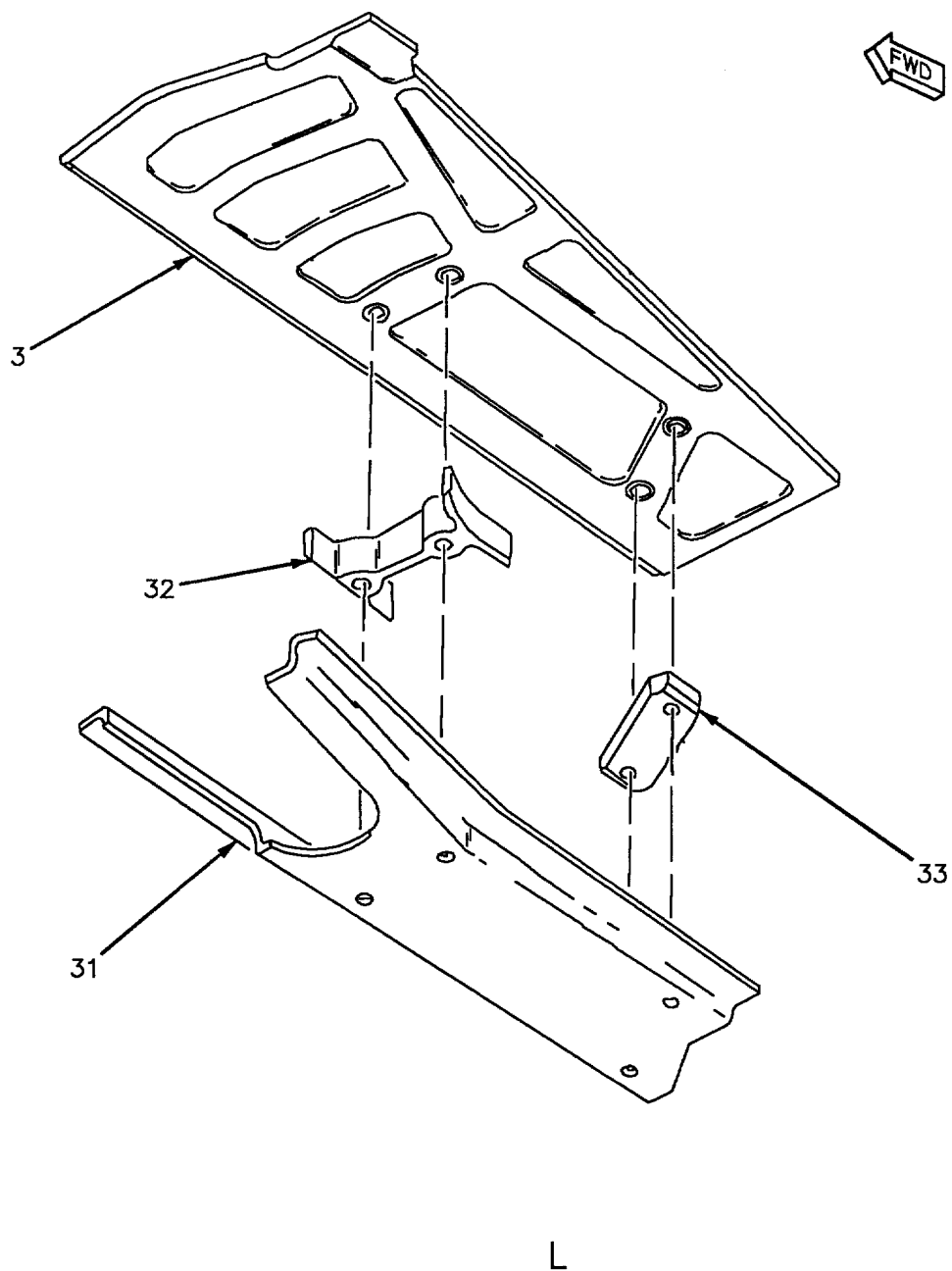


Figure 1. Material Index (Sheet 6)

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2	<div>1</div> <div>2</div> <div>3</div>	Seal (Door 190) 74A150774-2003, -2004 74A150774-2005, -2006 74A150774-2007, -2008	<div>9</div> 0.100 Sheet	7075-T76 Alclad
3		Door 74A150726-2007, -2008	0.125 Sheet	7075-T76 Alclad
4	<div>4</div>	Seal (Door 187) 74A150646-2013, -2014	0.100 Sheet	7075-T76511 Al Aly
5	<div>5</div> <div>6</div> <div>3</div>	Seal (Door 187) 74A150646-2019, -2020 74A150646-2023, -2024 74A150646-2029, -2030	0.100 Sheet	7075-T76511 Al Aly
6	<div>15</div> <div>3</div>	Seal 74A150646 2021, -2022 74A150646-2027, -2028	0.100 Sheet	7075-T76511 Al Aly
7	<div>16</div> <div>8</div> <div>10</div> <div>3</div>	Seal (Door 95) 74A190823-2013, -2014 74A190823-2021, -2022 74A190823-2029, -2030 74A190823-2037, -2038	0.100 Sheet	7075-T76 Alclad
8	<div>30</div> <div>11</div> <div>3</div>	Seal (Door 188) 74A150646-2003, -2004 74A150646-2017, -2018 74A150646-2025, -2026	0.140 Sheet	7075-T76511 Al Aly
9	<div>27</div> <div>28</div> <div>29</div> <div>7</div> <div>3</div>	Seal (Door 93) 74A190823-2017 74A190823-2018 74A190823-2025 74A190823-2026 74A190823-2033, -2034	0.100 Sheet	7075-T76 Alclad
10	<div>13</div>	Seal (Door 142) 74A150772-2001, -2002	0.100 Sheet	7075-T76 Alclad
11	<div>14</div> <div>3</div>	Seal (Door 142) 74A150848-2001, -2002 74A150848-2005, -2006	0.100 Sheet	7075-T76 Al Aly
12	<div>12</div> <div>10</div> <div>3</div>	Seal (Door 91) 74A190823-2019, -2020 74A190823-2027, -2028 74A190823-2035, -2036	0.100 Sheet	7075-T76 Alclad

Figure 1. Material Index (Sheet 7)





































Idx No.	Eft	Nomenclature and Part No.	Description	Material
13	 	Seal (Door 189) 74A150646-2015, -2016 74A150646-2031, -2032	0.140 Sheet	7075-T76511 Al Aly
14		Closure (Door 125) 74A150845-2001, -2002	0.080 Sheet	7075-T6 Al Aly
15	 	Seal 74A150835-2015, -2016 74A150852-2001, -2002	 0.071 Sheet	 7075-T6 Alclad
16		Angle 74A150835-2019, -2020	1MA100D05-10286 Extrusion	7075-T73511 Al Aly
17	 	Seal 74A150835-2013, -2014 74A150835-2027, -2028		
18	 	Seal 74A150835-2021, -2022 74A150852-2003, -2004	 0.071 Sheet	 7075-T6 Alclad
19	 	Seal 74A150835-2011, -2012 74A150835-2029, -2030		
20	 	Seal 74A150835-2001, -2002 74A150852-2013, -2014	 0.071 Sheet	 7075-T6 Alclad
21		Angle 74A150835-2003, -2004	1MA100D05-10286 Extrusion	7075-T73511 Al Aly
22	 	Seal 74A150835-2009, -2010 74A150835-2031, -2032		
23	 	Seal 74A150835-2023, -2024 74A150852-2007, -2008	 0.071 Sheet	 7075-T6 Alclad
24	 	Angle 74A150835-2003, -2004 74A150835-2019, -2020	1MA100D05-10286 Extrusion	7075-T73511 Al Aly
25	 	Seal 74A150835-2007, -2008 74A150835-2033, -2034		

Figure 1. Material Index (Sheet 8)



Idx No.	Eft	Nomenclature and Part No.	Description	Material
26	16 23 24	Seal 74A150835-2017, -2018 74A150852-2009, -2010 74A150852-2015, -2016	26 0.071 Sheet	22 7075-T6 Alclad
27	16	Seal 74A150835-2005, -2006	26	22
28	25 19	Seal 74A150835-2025, -2026 74A150835-2035, -2036	26	22
29	17	Seal 74A150852-2011, -2012	0.071 Sheet	7075-T6 Alclad
30	17	Angle 74A150835-2003, -2004	1MA100D05-10286 Extrusion	7075-T73511 Al Aly
31		Stiffener 74A150781-2007, -2008	0.040 Sheet	7075-T6 Alclad
32		Former 74A150779-2001, -2002	1MA10445D05 Extrusion	7075-T73511 Al Aly
33		Spacer 74A150780-2005, -2006	0.50 Plate	7075-T7351 Al Aly
LEGEND				
1 161353 THRU 161359. 2 161360 THRU 162414. 3 162415 AND UP. 4 161353 THRU 161705. 5 161706 THRU 161987. 6 162394 THRU 162414. 7 161748 THRU 162414. 8 161520 THRU 161761. 9 Trailing edge is 0.100, leading edge is chemically milled to 0.060. 10 161925 THRU 162414. 11 161520 THRU 162414; 161353 THRU 161519 AFTER F18AFC27. 12 161353 THRU 161761. 13 161353 THRU 161363. 14 161364 THRU 162414. 15 161706 THRU 162414. 16 161353 THRU 161519. 17 161520 AND UP. 18 161353 THRU 162397. 19 162398 AND UP. 20 161353 THRU 161965. 21 161966 AND UP.				

Figure 1. Material Index (Sheet 9)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
22			Fiberglass reinforced plastic laminate.	
23			161520 THRU 162477.	
24			162826 AND UP.	
25			161520 THRU 162397.	
26			Laminated plies of varying thickness.	
27			161353 THRU 161748.	
28			161353 THRU 161747.	
29			161749 THRU 162414.	
30			161353 THRU 161519 BEFORE F18AFC27.	

Figure 1. Material Index (Sheet 10)

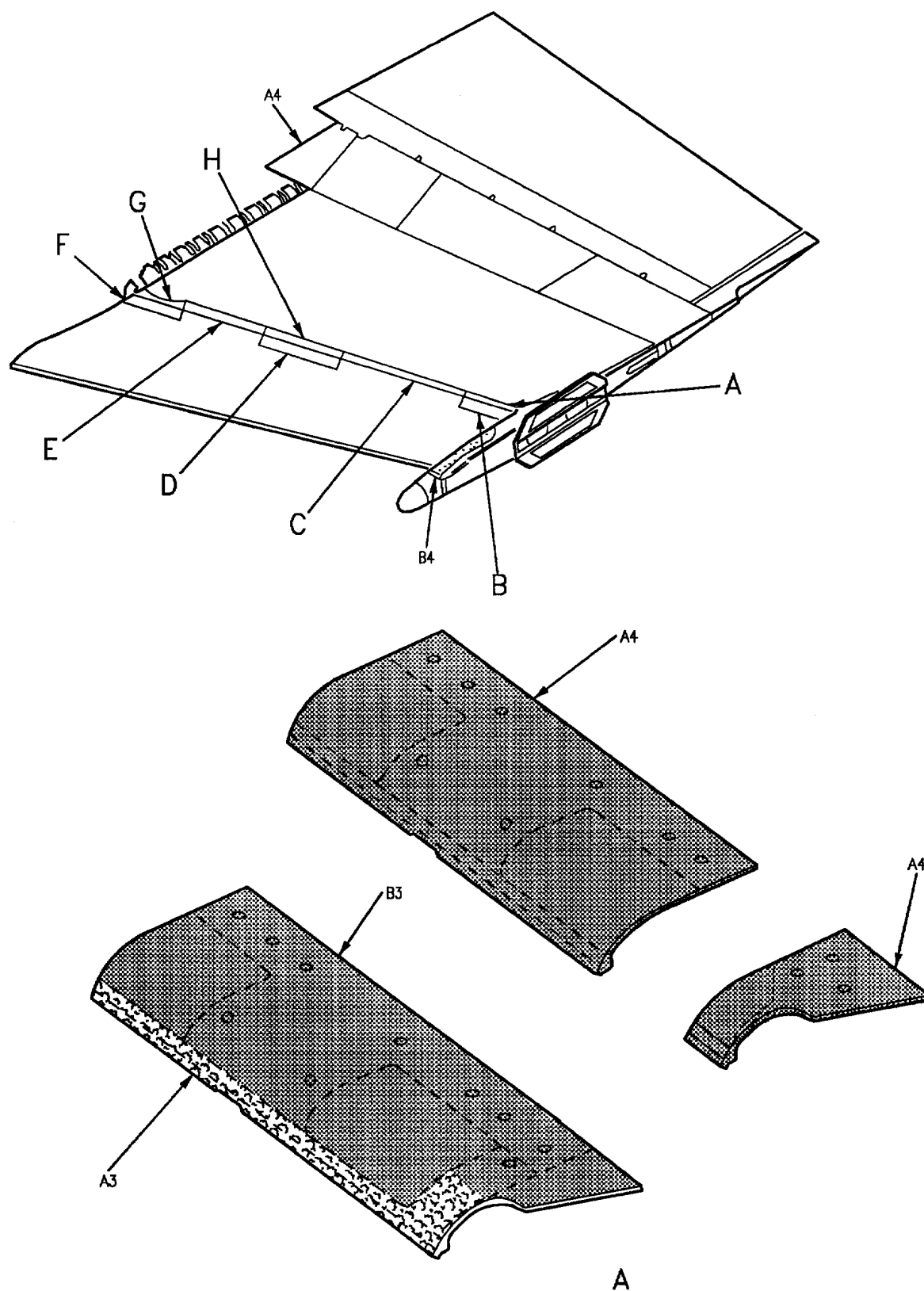


Figure 2. Repair Zones (Sheet 1)

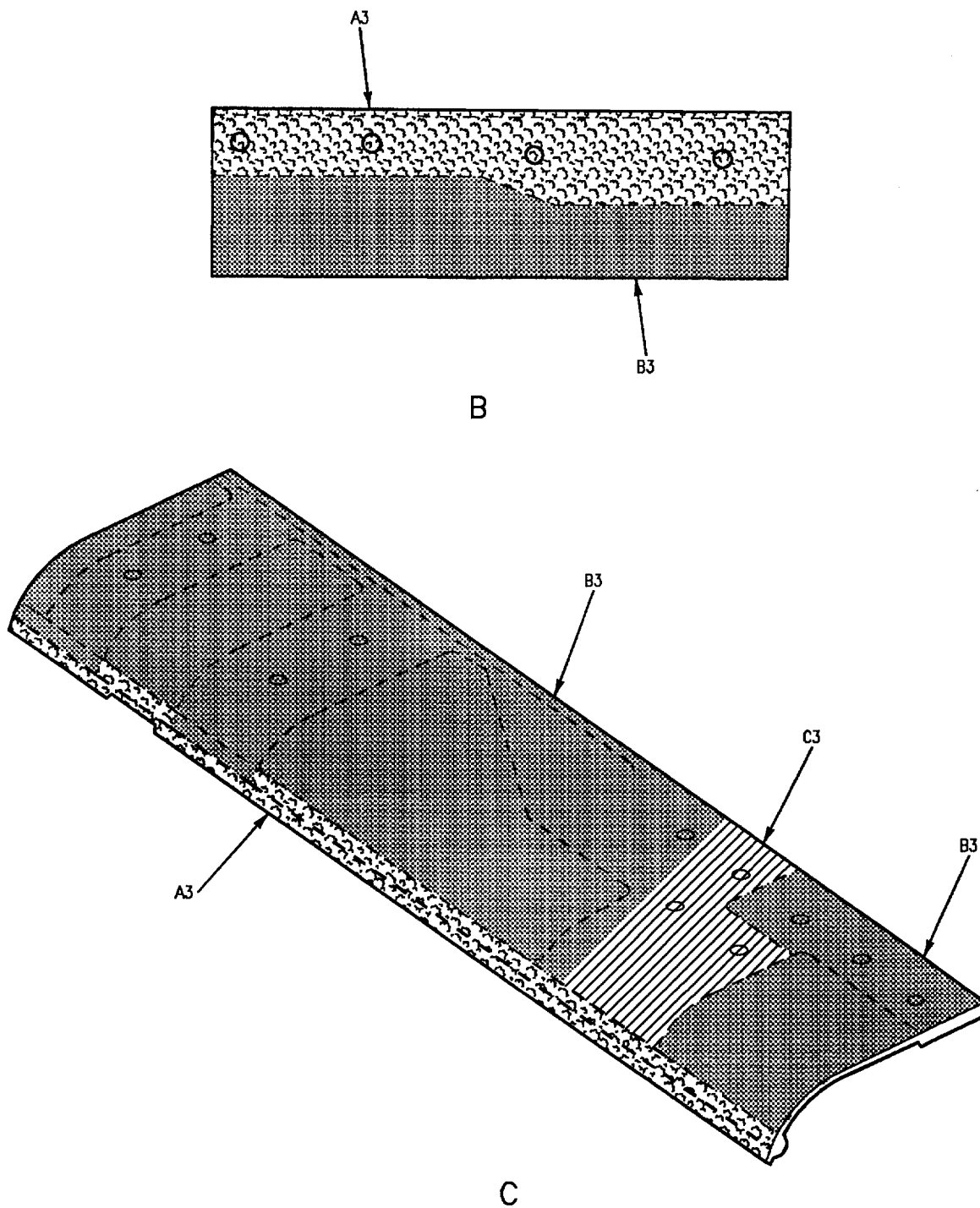


Figure 2. Repair Zones (Sheet 2)

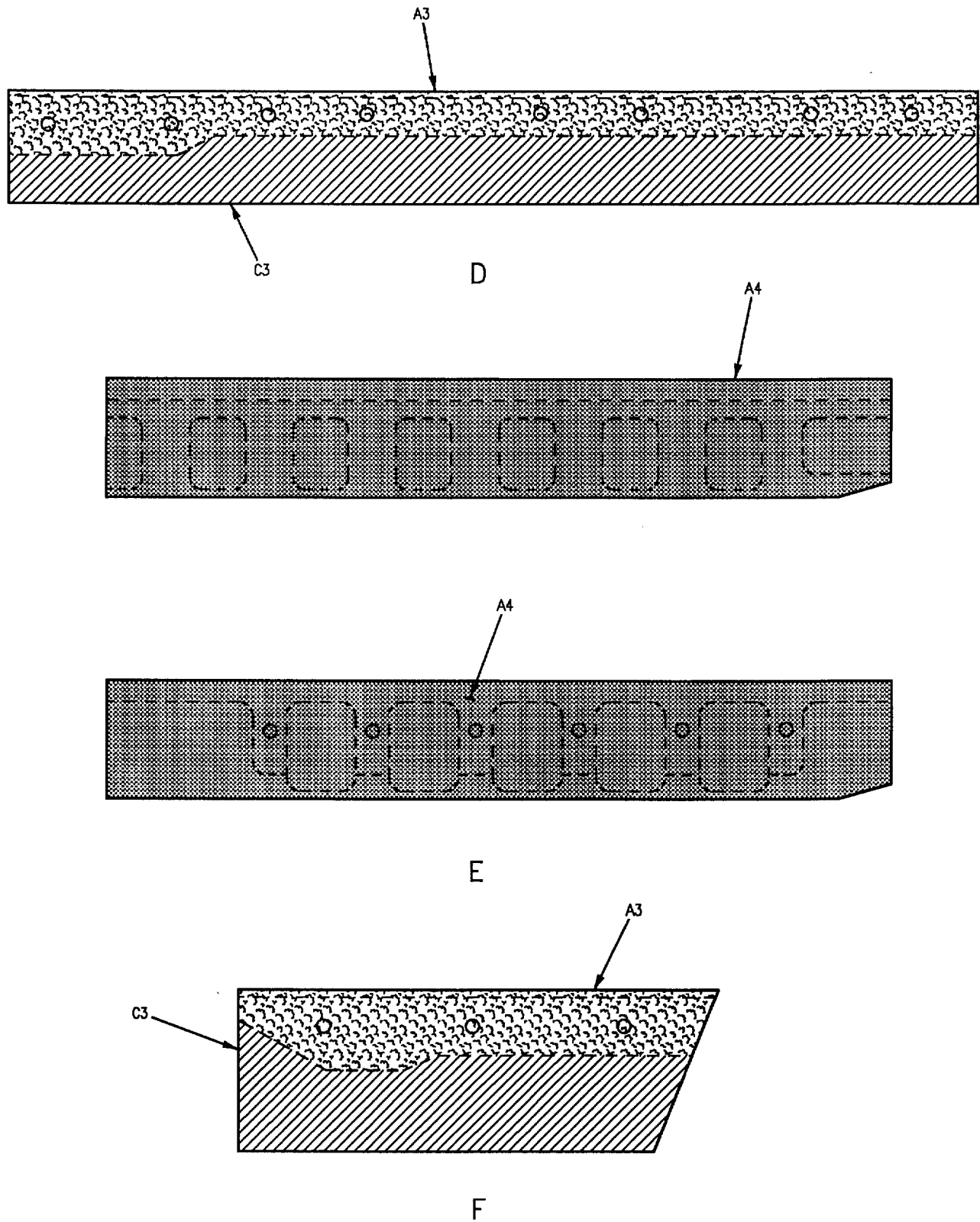
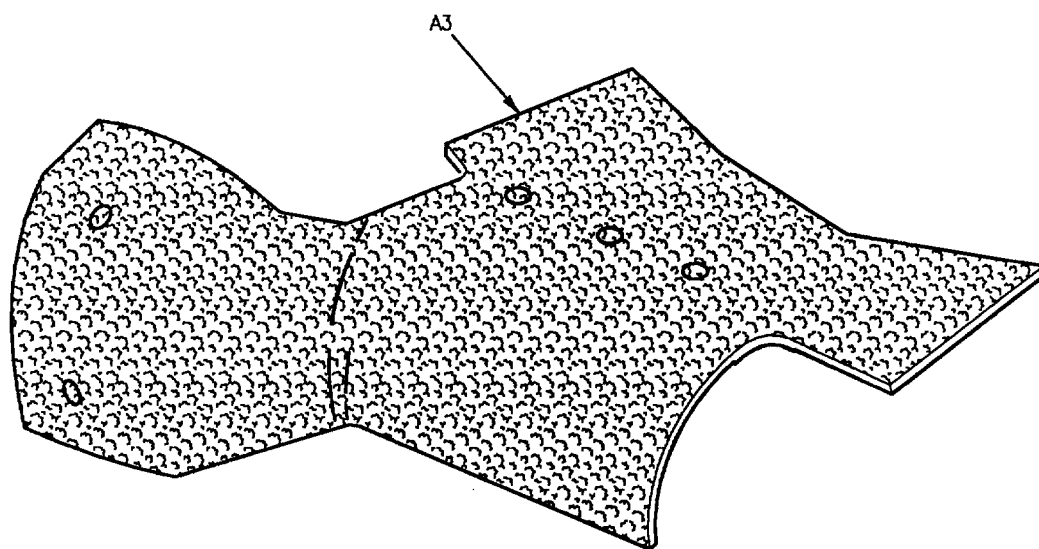
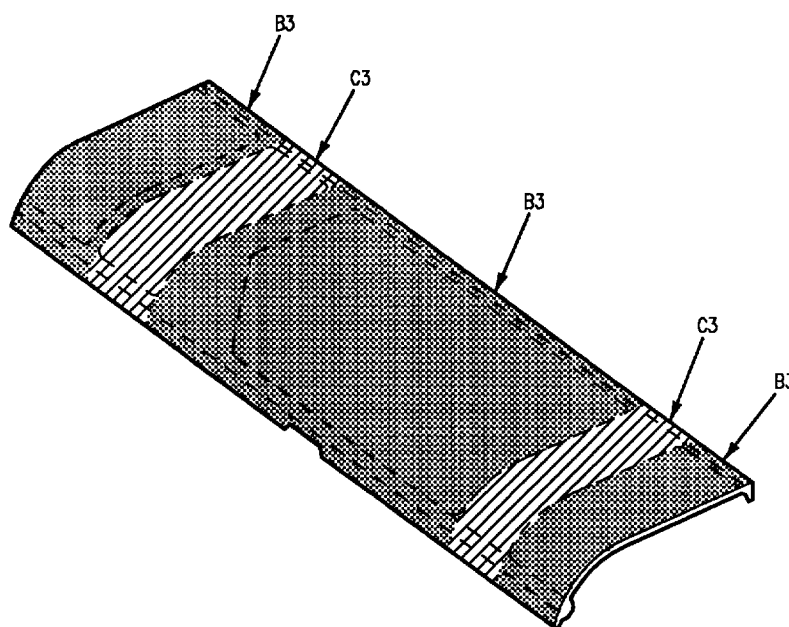


Figure 2. Repair Zones (Sheet 3)



G



H

Figure 2. Repair Zones (Sheet 4)

**13. REPLACEMENT.**

**14. SEAL (DOOR 91).** On 161363 THRU 162414, seal is replaceable and requires drilling and trimming. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). On 162415 AND UP, seal is interchangeable. For form in place sealing (A1-F18AC-SRM-500, WP010 00). For repair of gang channel, replacement rivets attaching gang channel and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 6. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

**15. SEAL (DOOR 93).** On 161353 THRU 162414, seal is replaceable and requires drilling and trimming. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). On 162415 AND UP, seal is interchangeable. For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement of gang channels and replacement rivets attaching gang channels not shown (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

**16. SEAL (DOOR 95).** Seal is replaceable and requires drilling and trimming. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement of gang channels and replacement rivets attaching gang channels not shown (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 4. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

**17. SEAL (DOOR 142).** Seal is interchangeable, on 161353 THRU 161363, requires trimming. For method of locating trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For replacement of gang channels and butt joint sealing (A1-F18AC-SRM-200, WP011 00). For replacement rivets attaching gang channel not shown (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 7. Installation of inserts (NAVAIR 02-1-19). For fasteners (A1-F18AC-SRM-410, FIG 008 00). Replace seal.

a. Remove screws.

b. Remove damaged seal.

c. Align gang channel (5) and angle (4) and mate drill rivet holes and screw holes.

d. Install rivets in gang channel (5) and angle (4).

e. Align angle (4) and seal and mate drill rivet holes.

f. Install rivets in angle (4) and seal.

g. Install seal.

**18. SEAL (DOOR 187).** Seal is replaceable and requires drilling and trimming. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For butt joint sealing (A1-F18AC-SRM-200, WP011 00). For repair of gang channel and plate nut, replacement rivets attaching gang channel and plate nut, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 4. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

**19. SEAL (DOOR 188).** Seal is replaceable and requires drilling and trimming. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For butt joint sealing (A1-F18AC-SRM-200, WP011 00). For repair of gang channel and plate nut, replacement rivets attaching gang channel and plate nut, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

**20. SEAL (DOOR 189).** Seal is replaceable and requires drilling. For locating blind holes (A1-F18AC-SRM-200, WP004 03). For butt joint sealing (A1-F18AC-SRM-200, WP011 00). For repair of gang channel, replacement rivets attaching gang channel, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 3.

For fasteners (A1-F18AC-SRM-410, FIG 008 00). Replace seal.

- a. Remove screws.
- b. Remove damaged seal.
- c. Align support (9) with seal and mate drill rivet holes.
- d. Install rivets (4) in seal and support (9).
- e. Align support (10) with seal and mate drill rivet holes.
- f. Install rivets (4, 5 and 6) in seal and support (10).
- g. Align gang channel (7) and support (10) and mate drill rivet and screw holes.
- h. Install rivets in gang channel (7) and support (10).
- i. Align gang channel (8) and support (9) and mate drill rivet and screw holes.
- j. Install rivets in gang channel (8) and support (9).
- k. Align seal to outboard leading edge flap and mate drill.
- l. Install seal.

21. **SEAL (DOOR 190).** Seal is replaceable and requires drilling and trimming. For locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For repair of gang channel, replacement rivets attaching gang channel, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 3. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

22. **CLOSURE (DOOR 144).** Closure is replaceable and requires drilling. For locating blind holes (A1-F18AC-SRM-200, WP004 03). For butt joint sealing (A1-F18AC-SRM-200, WP011 00). For repair of gang channel, replacement rivets attaching gang channel, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 6.

For fasteners (A1-F18AC-SRM-410, FIG 008 00). Replace closure.

- a. Remove screws.
- b. Remove damaged closure.
- c. Align gang channel (5) and channel (4) and mate drill rivet holes and screw holes.
- d. Install rivets in gang channel (5) and channel (4).
- e. Align channel (4) and closure and mate drill rivets holes.
- f. Install rivets in channel (3) and (8) to closure.
- g. Align closure to fwd missile support rib and mate drill.
- h. Install closure.

23. **DOOR (74A150713).** Door is replaceable and requires drilling and trimming. For locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). For fay and butt joint sealing (A1-F18AC-SRM-200, WP011 00). For replacement of gang channels and replacement rivets attaching gang channel not shown (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 7. For fasteners (A1-F18AC-SRM-410, FIG 004 00).

24. **CLOSURE (DOOR 125).** For replacement of plate nuts and replacement rivets attaching plate nuts not shown (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 8. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

- a. Replace plate nuts.
- b. Install door.
- c. Fill gaps and fillet seal between door and structure with MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00).

25. **REWORK OF SEAL (DOORS 91, 93, 95 AND 142).** See figure 9.

- a. Trim seal to allowable gap, views A and B.



b. Refinish trimmed edge (A1-F18AC-SRM-500, WP027 00).

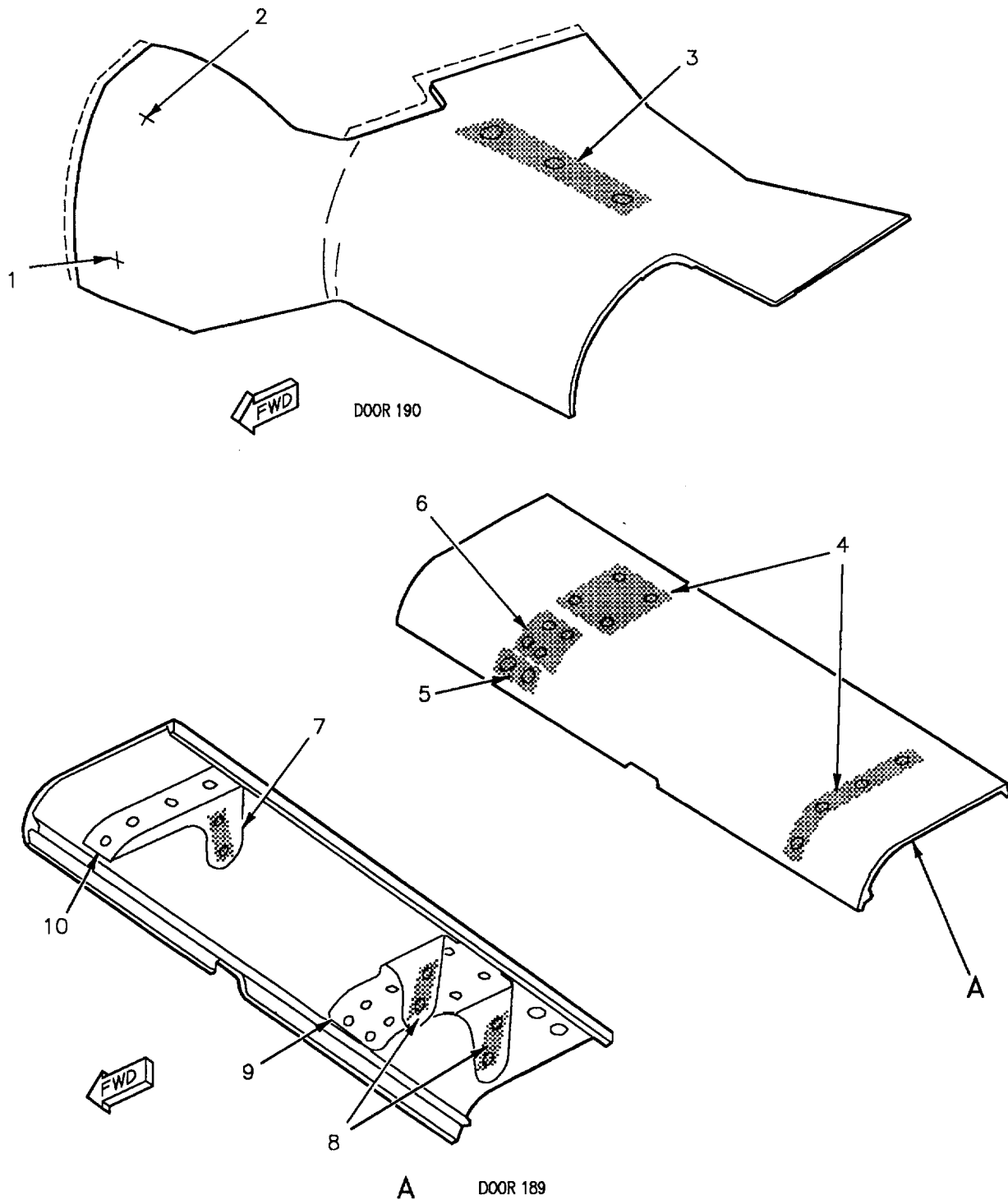


Figure 3. Seals (Door 190 and 189) Replacement (Sheet 1)

Idx No.	Eft		Nomenclature	Part Number
1	<div>6</div> <div>6</div> <div>6</div> <div>8</div> <div>8</div> <div>8</div>	<div>1</div> <div>9</div>	Nut Washer <div>7</div> Radius Block Nut Washer <div>7</div> Radius Block	NAS1291C4M AN960PD416 74150755-2135 NAS1291C3M AN960JD10L 74A150755-2441
2	<div>6</div> <div>6</div> <div>6</div> <div>8</div> <div>8</div> <div>8</div>	<div>1</div> <div>9</div>	Nut Washer <div>7</div> Spacer Nut Washer <div>7</div> Spacer	LH12180-4 AN960PD416 74A150755-2145, -2146 NAS1291C3M AN960JD10L 74A150755-2439, -2440
3		<div>1</div>	Gang Channel Radius Block Radius Block	G18421JL1-4-8 74A150755-2191 74A150755-2192
4		<div>3</div>	Rivet	HLT313DL3
5		<div>4</div>	Rivet	CRS902B4-5
6		<div>6</div>	Rivet	CRS902B5-5
7		<div>2</div>	<div>7</div> Gang Channel	G18421JL1-4-7
8		<div>2</div>	Gang Channel	74A110051-2009
9	<div>10</div> <div>11</div>		Support Support	74A150703-2035, -2036 74A150703-2037, -2038
10	<div>10</div> <div>11</div>		Support Support	74A150732-2007, -2008 74A150732-2009, -2010
<b>LEGEND</b>  <div>1</div> Hole diameter is 0.2550 +0.0070 -0.0000. <div>2</div> Hole diameter is 0.2500 +0.0060 -0.0000. <div>3</div> Hole diameter is 0.1600 +0.0025 -0.0000. <div>4</div> Hole diameter is 0.1360 +0.0060 -0.0000. <div>5</div> Hole diameter is 0.1600 +0.0060 -0.0000. <div>6</div> 161353 THRU 162414. <div>7</div> Attached by bonding with MIL-S-8802 and riveting. <div>8</div> 162415 AND UP. <div>9</div> Hole diameter is 0.1950 +0.0070 -0.0000. <div>10</div> 161353 THRU 161360. <div>11</div> 161361 AND UP.				

Figure 3. Seals (Door 190 and 189) Replacement (Sheet 2)

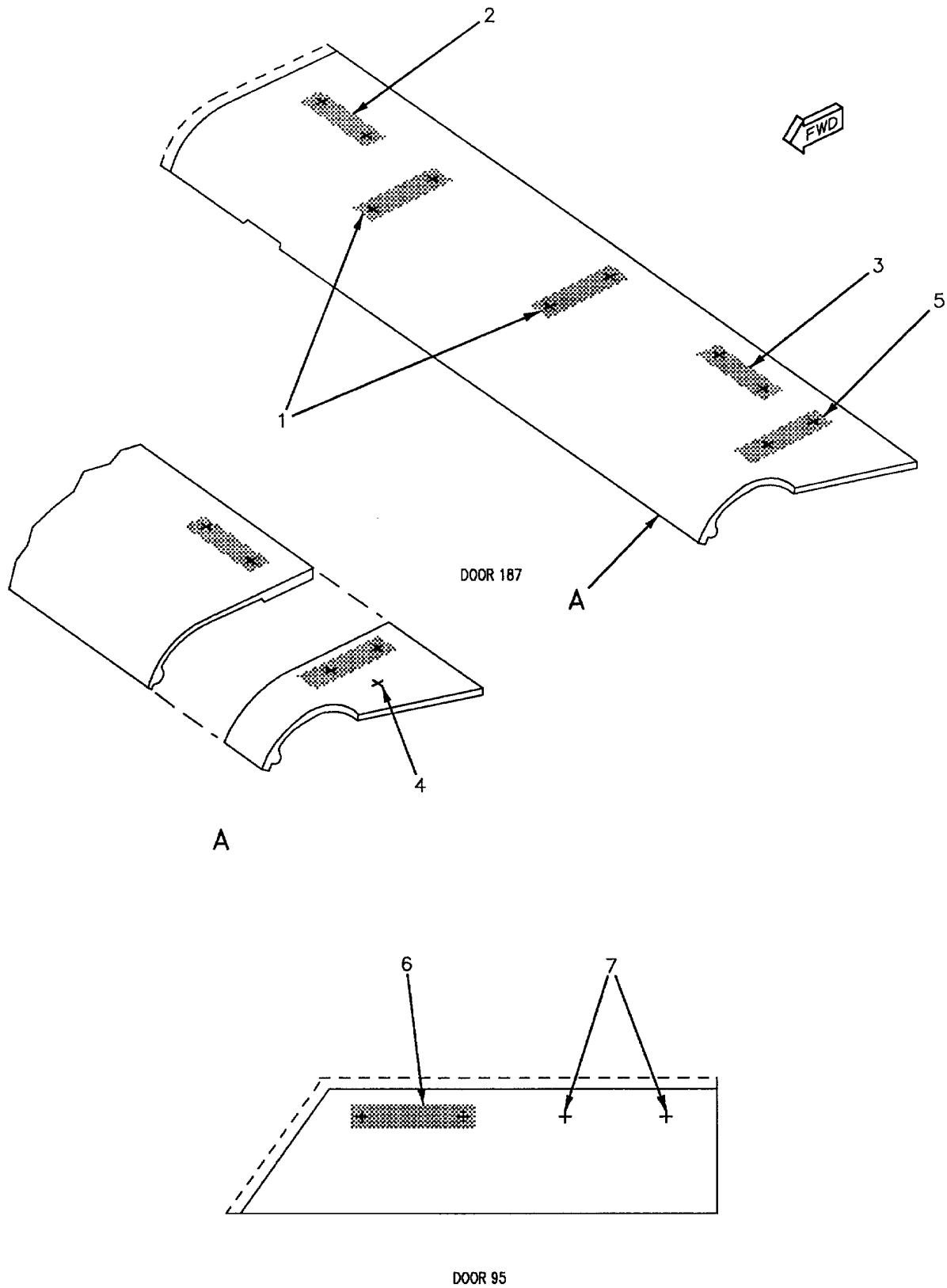


Figure 4. Seals (Door 187 and 95) Replacement (Sheet 1)




















Idx No.	Eft		Nomenclature	Part Number
1			Plate Nut	F49251E4-1
2			Gang Channel	G18421JL1-4-8
3			Gang Channel  Shim	G18421JL1-4-7 74A150755-2103
4	 		Plate Nut Spacer Washer Nut	NS103597-054 74A150755-2415 NAS1252-516L LH12180-5
5	 		 Gang Channel Washer Nut	G50344-5-1-10 NAS1252-516L LH12180-5
6			Plate Nut	F50339-4-1
7	 		Gang Channel Gang Channel	G18421JL1-4-14 G18421JL1-4-12
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.2550 +0.0070 -0.0000.</p> <p> Attached by bonding with MIL-S-8802 and riveting.</p> <p> 161353 THRU 161619.</p> <p> 161520 AND UP.</p>				

Figure 4. Seals (Door 187 and 95) Replacement (Sheet 2)

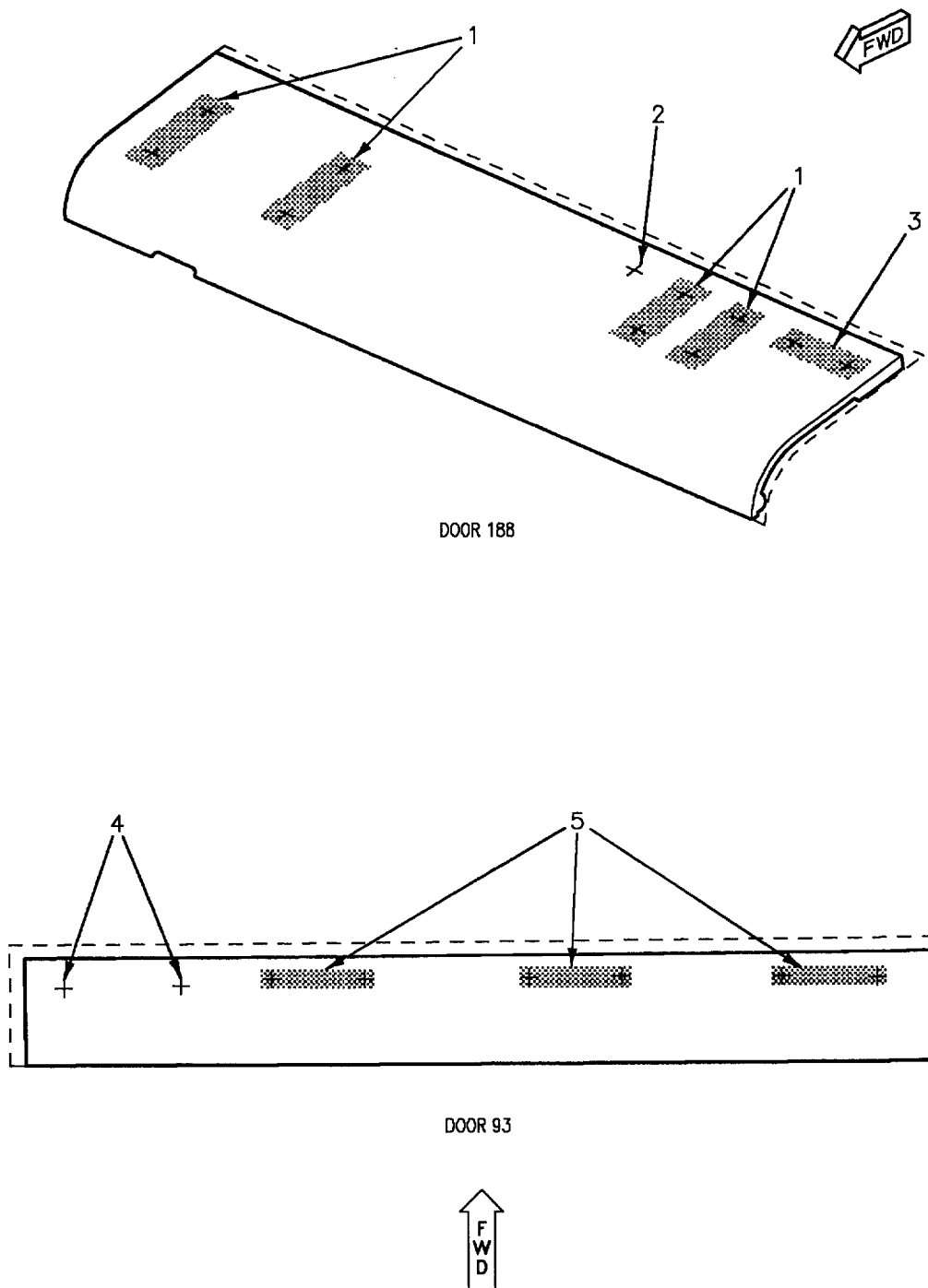


Figure 5. Seals (Door 188 and 93) Replacement (Sheet 1)










Idx No.	Eft		Nomenclature	Part Number
1			 Gang Channel	G18421JL1-4-9
2			Plate Nut	F49249E-4- 1
3			Gang Channel	G18421JL1-4-10
4			Plate Nut	F50339-4-1
5			Gang Channel	G18421JL1-4-16
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.2500 +0.0060 -0.0000.</p> <p> Hole diameter is 0.2550 +0.0070 -0.0000.</p> <p> Attached by bonding with MIL-S-8802 and riveting.</p>				

Figure 5. Seals (Door 188 and 93) Replacement (Sheet 2)

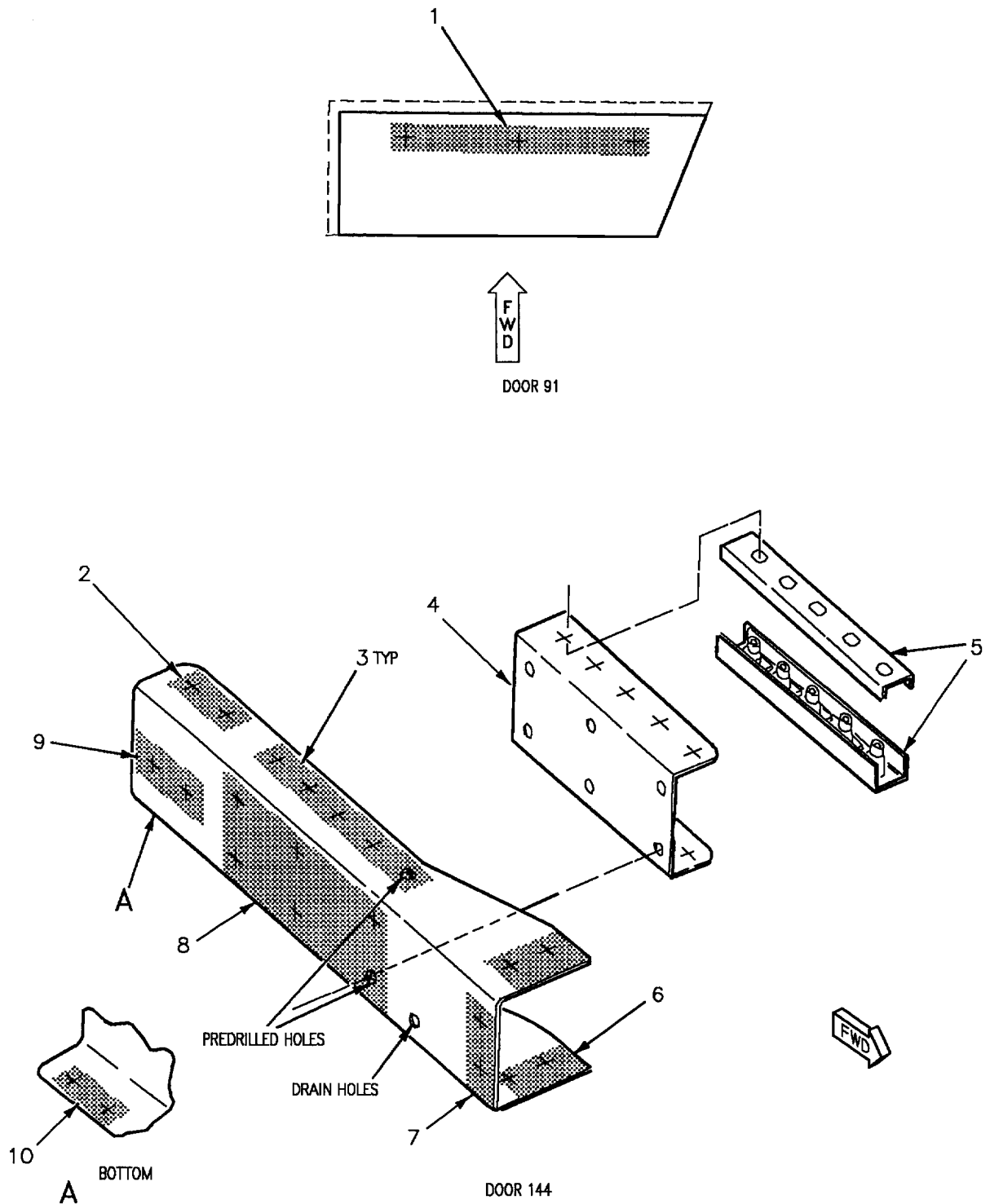


Figure 6. Seal (Door 91), Closure (Door 144) Replacement (Sheet 1)



























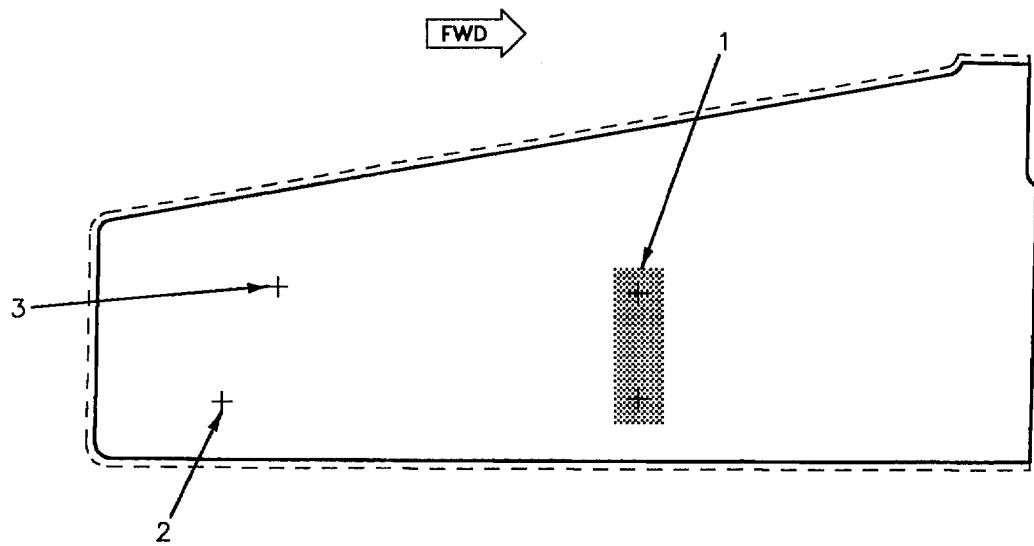
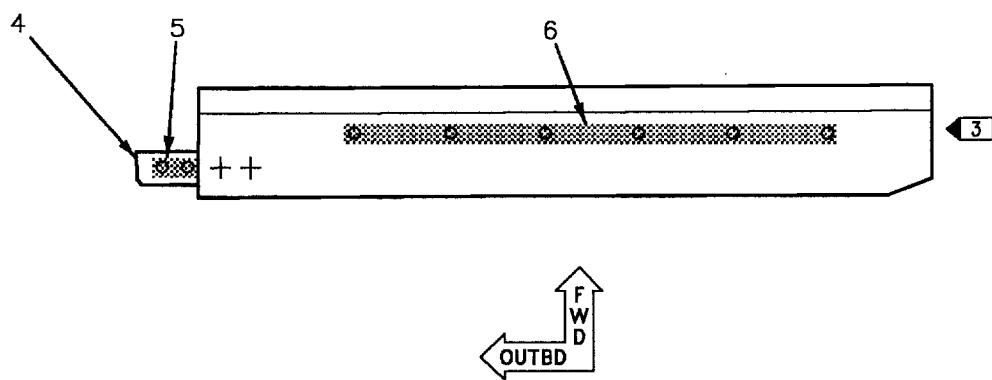
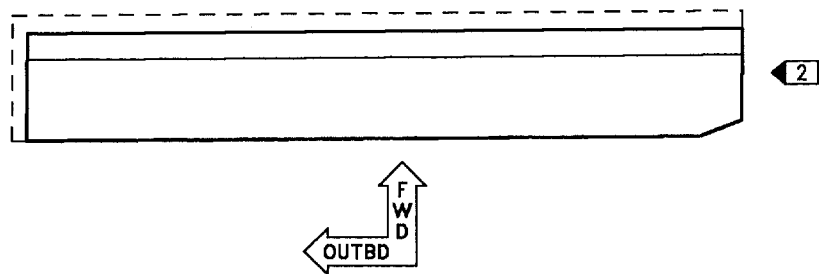
Idx No.	Eft		Nomenclature	Part Number
1			 Gang Channel	G18421JL9-4-1
2			 Gang Channel	G51061-4-10
3			 Rivet	MS20426AD3
4			Channel	74A150626-2003, -2004
5			Gang Channel	G18421JL2-4-8
6			 Gang Channel Shim	G10851-4-6-24M49A4DM6-2
7			 Gang Channel	G10851-4-6-2
8			 Rivet	MS20426AD4
9			 Gang Channel	G18421JL2-4-8
10			Gang Channel	G51061-4-8
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.2550 +0.0070 -0.0000.</p> <p> Hole diameter is 0.2495 +0.0025 -0.0000.</p> <p> Hole diameter is 0.0980 +0.0100 -0.0000.</p> <p> Hole diameter is 0.1285 +0.0055 -0.0000.</p> <p> Attached with HT4024L4-3 screws.</p> <p> Attached by bonding with MIL-S-8802 and riveting.</p> <p> Length is determined on installation.</p>				

Figure 6. Seal (Door 91), Closure (Door 144) Replacement (Sheet 2)



DOOR (74A150713)



DOOR 142

Figure 7. Door (74A150713), Seal (Door 142) Replacement (Sheet 1)
















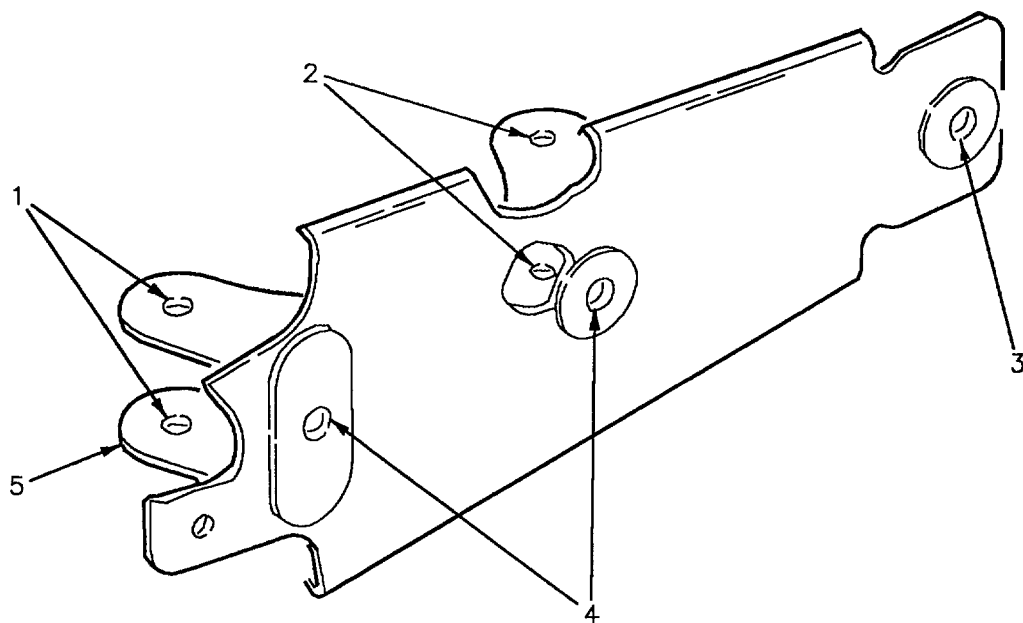
Idx No.	Eft		Nomenclature	Part Number
1	 		Plate Nut Gang Channel	F14421-1-4 74B110051-2023
2			Washer Nut	AN960JD416L NAS1291C4M
3			Plate Nut	F14421-1-4
4			Angle	74A150850-2003, -2004
5			Gang Channel	G18421JL1-3-6
6			Insert	MS51830A201L
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.2500 +0.0060 -0.0000.</p> <p> 161353 THRU 161363.</p> <p> 161364 AND UP.</p> <p> Hole diameter is 0.1950 +0.0070 -0.0000.</p> <p> Hole diameter is 0.1540 +0.0006 -0.0000.</p> <p> 161353 THRU 161740.</p> <p> 161741 AND UP.</p>				

Figure 7. Door (74A150713), Seal (Door 142) Replacement (Sheet 2)



DOOR 125



Figure 8. Closure (Door 125) Replacement (Sheet 1)








Idx No.	Eft		Nomenclature	Part Number
1			Plate Nut	F49251E5-2
2			Plate Nut	F49251E4-2
3			Clip Nut	A11144-7-3
4			Plate Nut	F49251E3-2
5			Support	74A150845-2005
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.322 +0.007 -0.000.</p> <p> Hole diameter is 0.250 +0.007 -0.000.</p> <p> Hole diameter is 0.195 +0.007 -0.000.</p>				

Figure 8. Closure (Door 125) Replacement (Sheet 2)

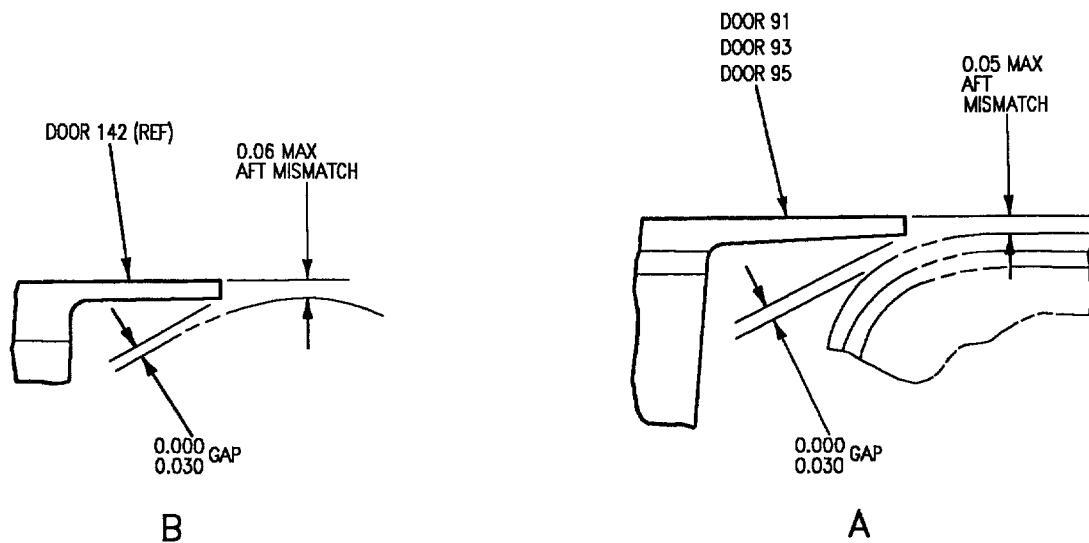
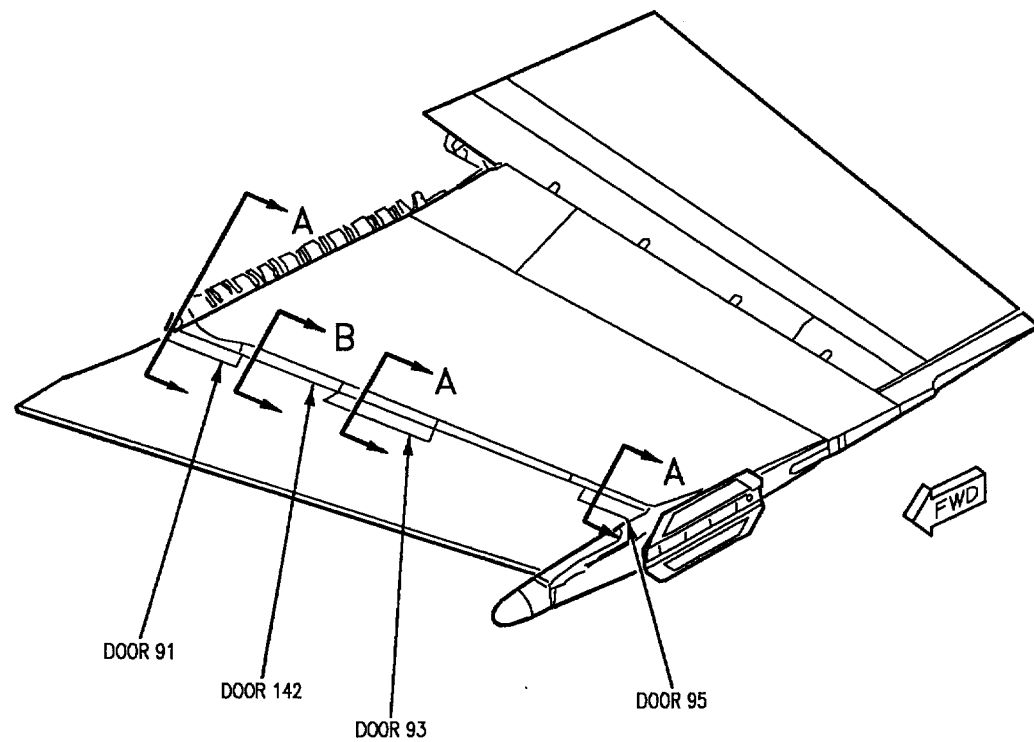


Figure 9. Seal (Door 91, 93, 95 and 142) Gap and Mismatch

## ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING EXTERNAL COMPOSITE DOORS, UPPER

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Hole Locating Plate Sets RE174150820 (Door 84), RE174150826 (Door 83) .....	WP013 02
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Form In Place Sealing .....	WP010 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Pulse Echo, Longitudinal Wave Contact Without Delay Line, For Composite Material .....	WP008 02
Pulse Echo, Longitudinal Wave Contact With Delay Line, For Composite Material .....	WP008 03
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Structure Assy - Wing Outer .....	FIG 008 00
Cover, Access - Aileron Servo Cylinder, Instl of .....	FIG 009 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Gang Channel and Plate Nut Identification and Repair .....	WP004 05
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Graphite Epoxy Skin, Class I Damage Repair .....	WP008 00
Graphite Epoxy Skin, Class III Damage Repair .....	WP010 00
Graphite Epoxy Skin, Class IV Damage Repair .....	WP011 00
Graphite Epoxy Skin, Class V Damage Repair .....	WP011 01

## Alphabetical Index

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Repairable Damage .....	2
Repairs .....	3
Patch Selection .....	3
Replacement .....	12
Cover (Door 83) .....	12
Skin (Door 84) .....	12

## Record of Applicable Technical Directives

None

## Support Equipment Required

None

## Materials Required

None

1. **DAMAGE EVALUATION.** See figures 1 and 2.

2. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Repair zones are given in figure 2. Damage not listed or exceeding limits below requires depot engineering disposition.

3. **NEGLIGIBLE DAMAGE.** See figure 3. Negligible damage may be allowed to exist as is, type and limits are.

a. Delaminations between skin plies. See section A. Determine size and location of delamination (A1-F18AC-SRM-300, WP008 02 and WP008 03).

(1) Delaminations do not extend to edge of skin.

(2) Delaminations are at least 0.021 inch below skin surface.

(3) Diameter is 1.00 inch or less.

(4) Distance between delaminations is at least four times the diameter of largest delamination.

(5) No more than three delaminations in a 12 inch diameter circle.

4. **REPAIRABLE DAMAGE.** Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristic, or safety of aircraft.

5. **Skin Surface Damage and Dents, Class I Damage.** See figure 4, section A. Class I damage is made up of:

a. Cuts, scratches, pits, erosion, or abrasions.

(1) Depth is not more than 0.005 inch.

(2) No longer than 5 inches.

b. Dents.

(1) Depth is no more than 0.015 inch.

(2) There is no skin ply delaminations related to the dent.

(3) Fiber damage is no more than 0.005 depth.

(4) No more than three dents in a 5 inch diameter circle.

(5) Distance between dents is at least four times the diameter of largest dent. Measure distance between dents edge to edge.

6. **Fiber Damage Around Fastener Holes and Surface Rips, Class III Damage.** See figure 4, sections B and C. Class III damage is made up of:

a. Surface ply rips.

(1) Depth is no more than 0.010 inch.

(2) Width is no more than 0.025 inch.

(3) No longer than 2.0 inches.

b. Loose or missing fibers or skin abrasions fastener holes and/or counter sinks.

(1) Depth is no more than 0.010 inch.

(2) Width is no more than 0.025 inch.

(3) No longer than 2.0 inches.

7. **Skin Penetration, Class IV Damage.** See figure section 4, section D. Class IV damage is made up of:

a. Damage must be in a repair zone, figure 2.

b. Mark damaged area determined by NDI (A1-F18AC-SRM-300, WP008 02 and WP008 03) to the smallest diameter of 1.25 inch, 2.00 inch, 3.00 inch, or 4.00 inch as shown in figure 4, view E.

c. Distance between repairs is more than six times the diameter of the damage cutout.

d. Edge of damage must be located within minimum dimension as shown on figure 4, detail E.



8. **Delaminations, Class V Damage.** See figure 4, sections F, G, and H. Class V damage is delamination damage which does not exceed the limits listed below:

a. Delamination not open to edge, see section F.

(1) Damage must be able to be located within a 3 inch diameter circle.

(2) Multiple delaminations located within a 3 inch diameter circle shall be considered as one damage.

(3) Minimum spacing measured edge to edge between damages shall be four diameters of largest damage.

b. Delamination open to edge, see sections G and H.

(1) Length of damage is no more than 4.00 inch.

(2) Depth of damage is no more than 0.75 inch.

(3) There is no ply damage related to delamination.

(4) Delamination is not adjacent to damaged holes.

## 9. REPAIRS.

10. Class I, III, and V are organizational maintenance. Class IV is intermediate maintenance. Damages can be repaired by the procedures referenced below:

### WARNING

Installation of an overweight repair could cause failure of the doors, resulting in loss of life or injury. Engineering approval of repairs on the doors is required.

a. Repair class I damage (A1-F18AC-SRM-250, WP008 00).

b. Repair class III damage (A1-F18AC-SRM-250, WP010 00).

c. Select patch per paragraph 11 and repair class IV damage (A1-F18AC-SRM-250, WP011 00).

d. Repair class V damage (A1-F18AC-SRM-250, WP011 01).

### NOTE

All other repairs and weight limitations require depot engineering disposition.

11. **PATCH SELECTION.** Select applicable patch.

### NOTE

Patches are part of 74K000006 bolted repair kit (A1-F18AC-SRM-250, WP011 00).

a. For 1.25 inch diameter damage use -1001 patch.

b. For 2.00 inch diameter damage use -1003 patch.

c. For 3.00 inch diameter damage use -1005 patch.

d. For 4.00 inch diameter damage use -1007 patch.

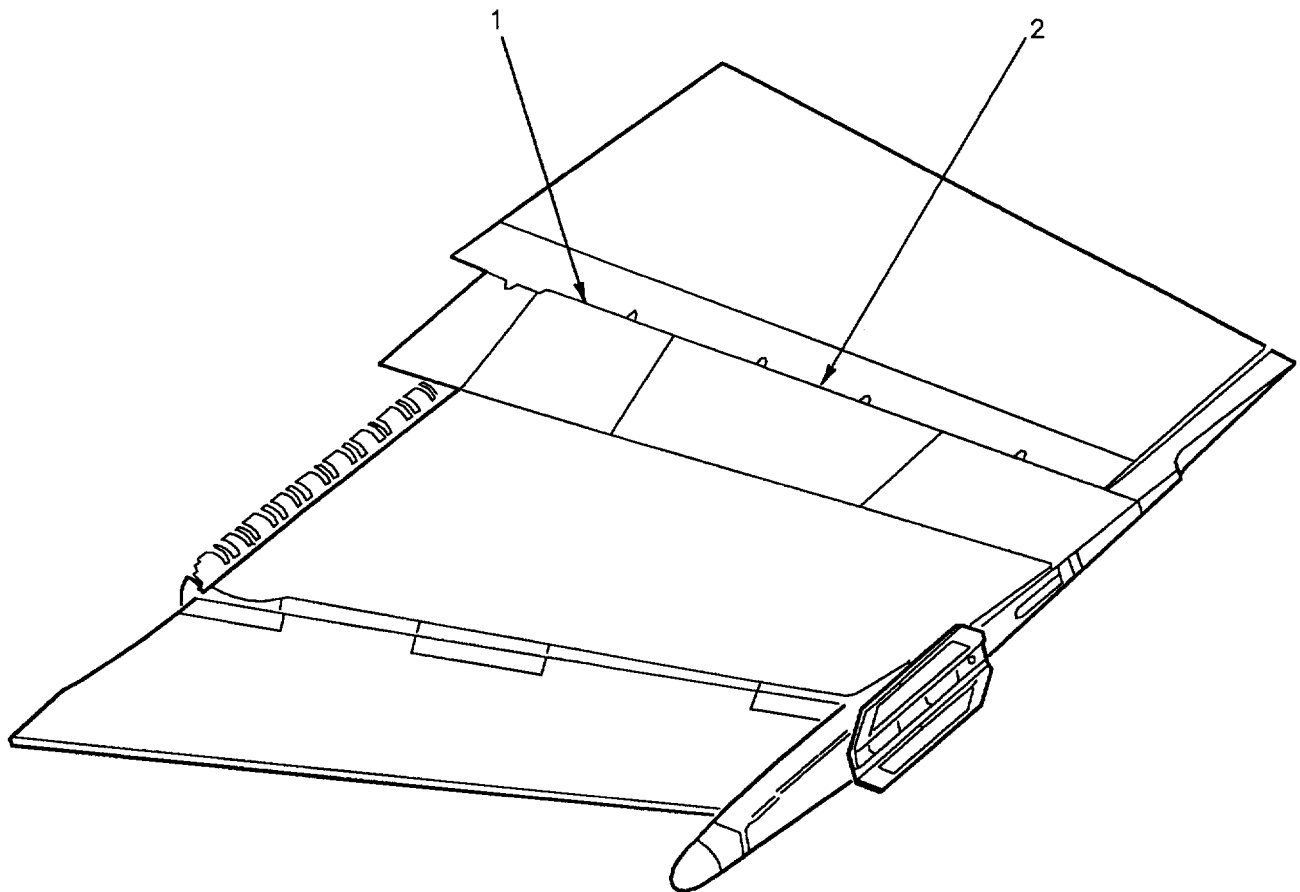
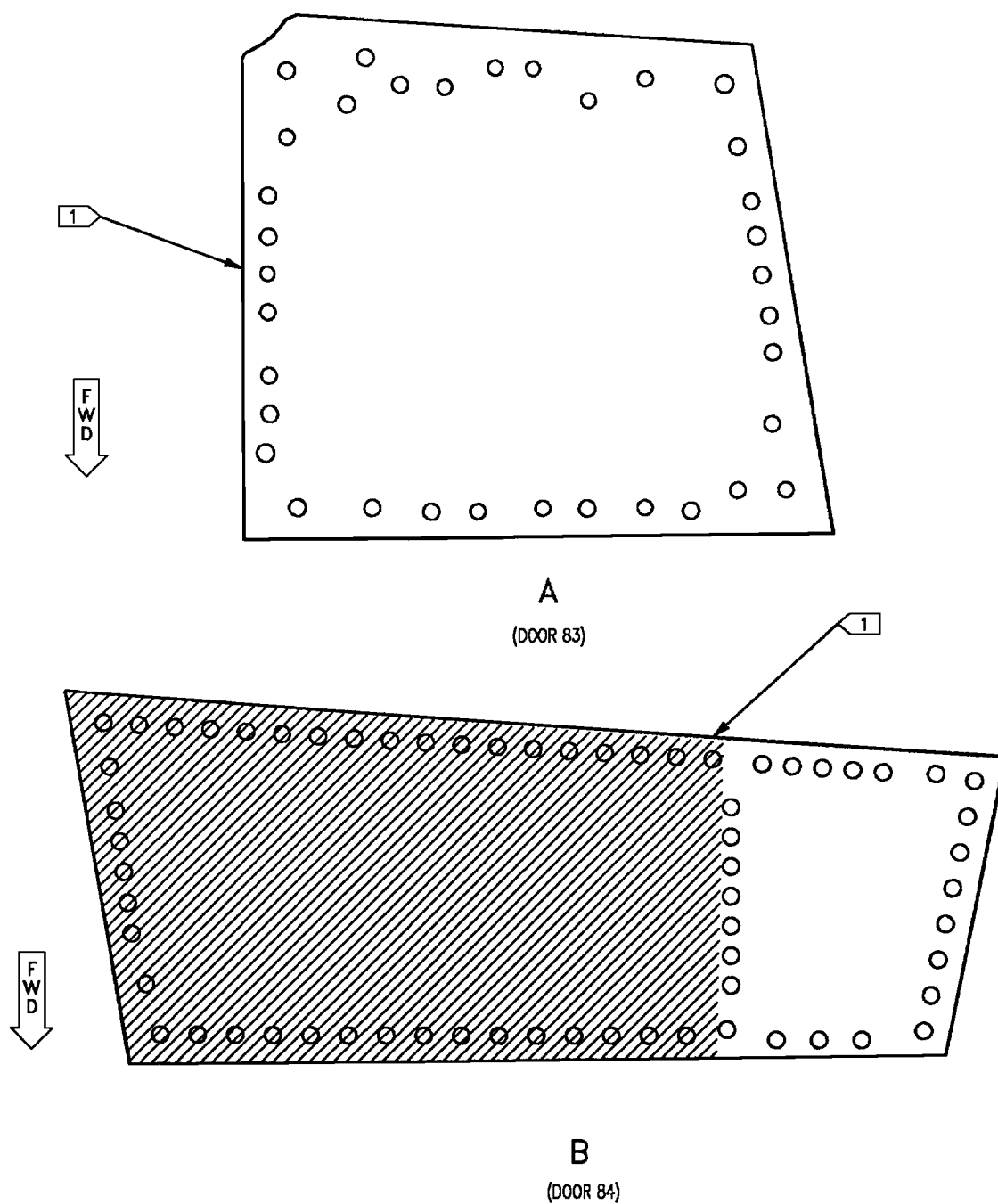


Figure 1. Material Index (Sheet 1)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	<div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div>	Cover (Door 83) 74A150826-2061, -2062 74A150826-2063, -2064 74A150826-2065, -2066 74A150826-2067, -2068 74A150826-2069, -2070	<div>2</div> Laminate	<div>1</div>
2	<div>8</div> <div>9</div>	Skin (Door 84) 74A150820-2015, -2016 74A150820-2017, -2018	<div>2</div> Laminate	<div>1</div>
<p style="text-align: center;"><b>LEGEND</b></p> <div>1</div> Graphite epoxy prepreg with a top ply of glass epoxy prepreg. <div>2</div> Laminated of varying plies. <div>3</div> 161353 THRU 161361. <div>4</div> 161362 THRU 161708. <div>5</div> 161709 THRU 161713. <div>6</div> 161714 THRU 161987. <div>7</div> 162394 AND UP. <div>8</div> 161353 THRU 161713. <div>9</div> 161714 AND UP.				

Figure 1. Material Index (Sheet 2)





**LEGEND**

1 REQUIRES ENGINEERING DISPOSITION  
FOR CLASS IV DAMAGE REPAIRS

Figure 2. Repair Zones (Sheet 2)

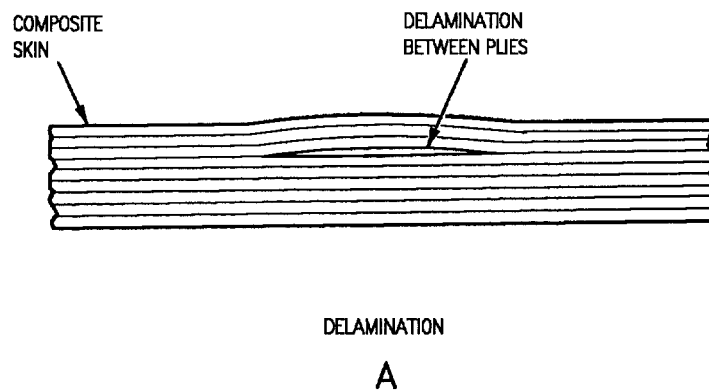
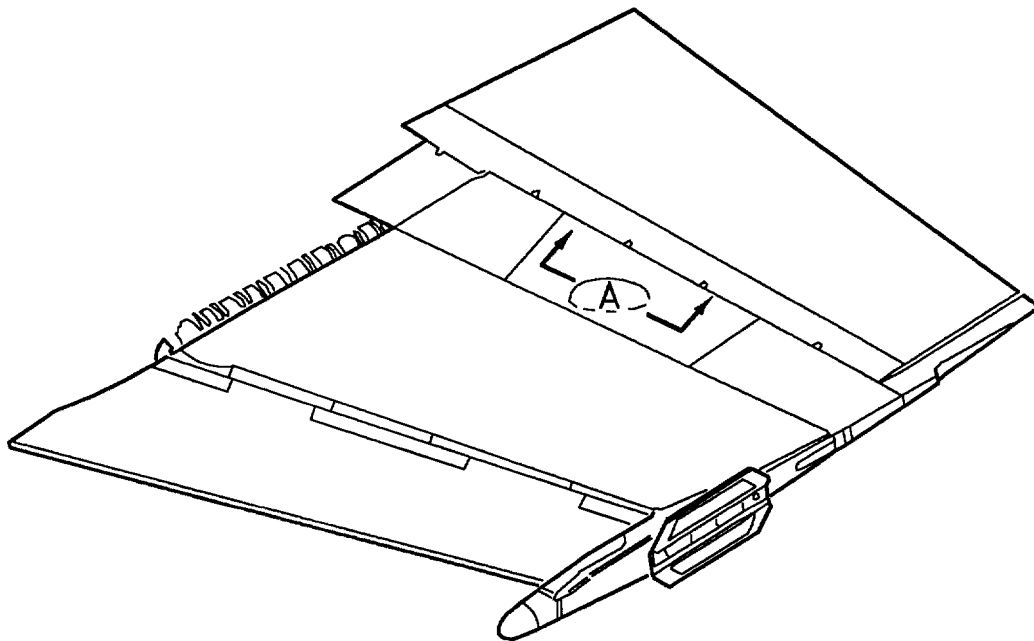


Figure 3. Negligible Damage

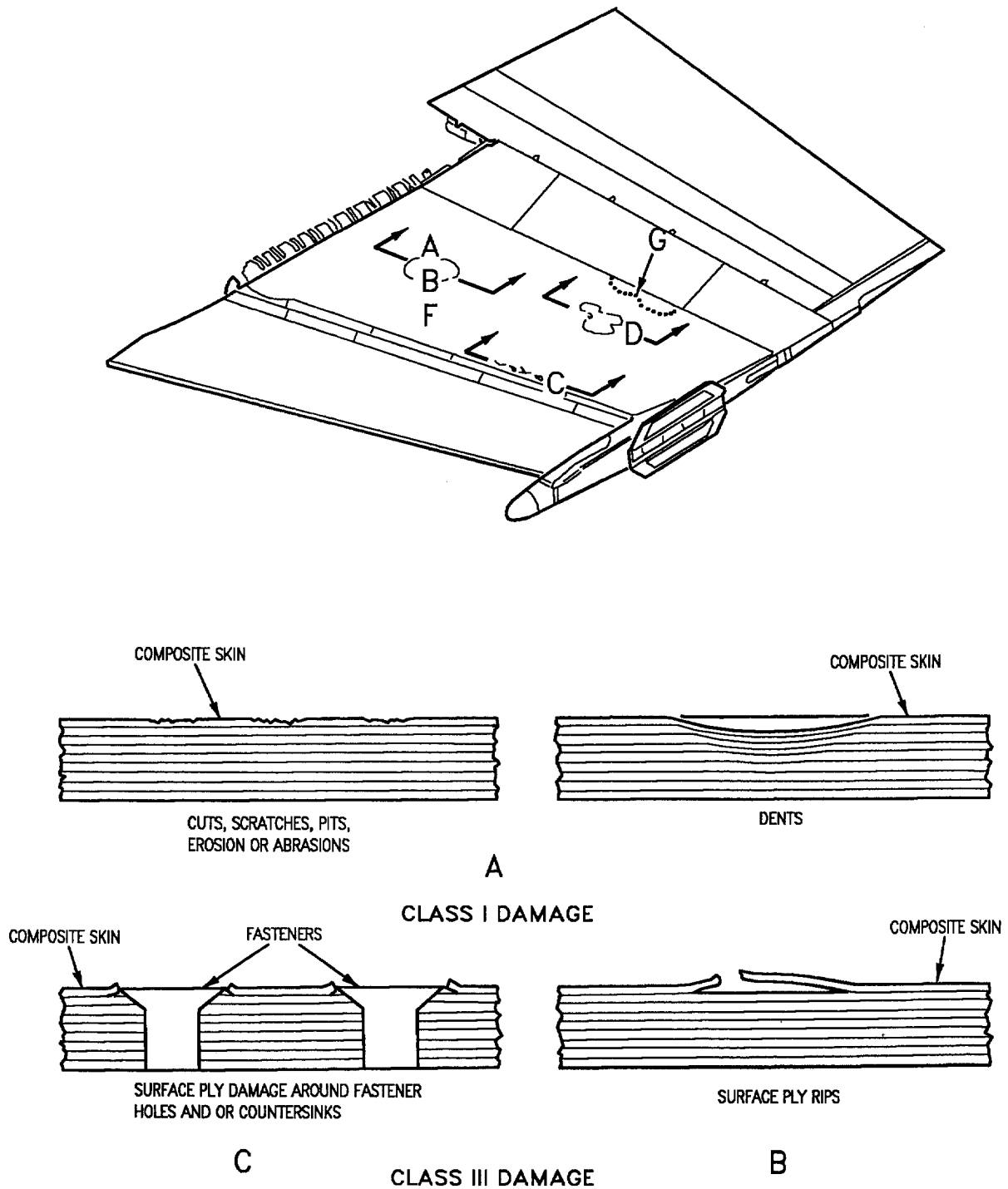


Figure 4. Repairable Damage (Sheet 1)

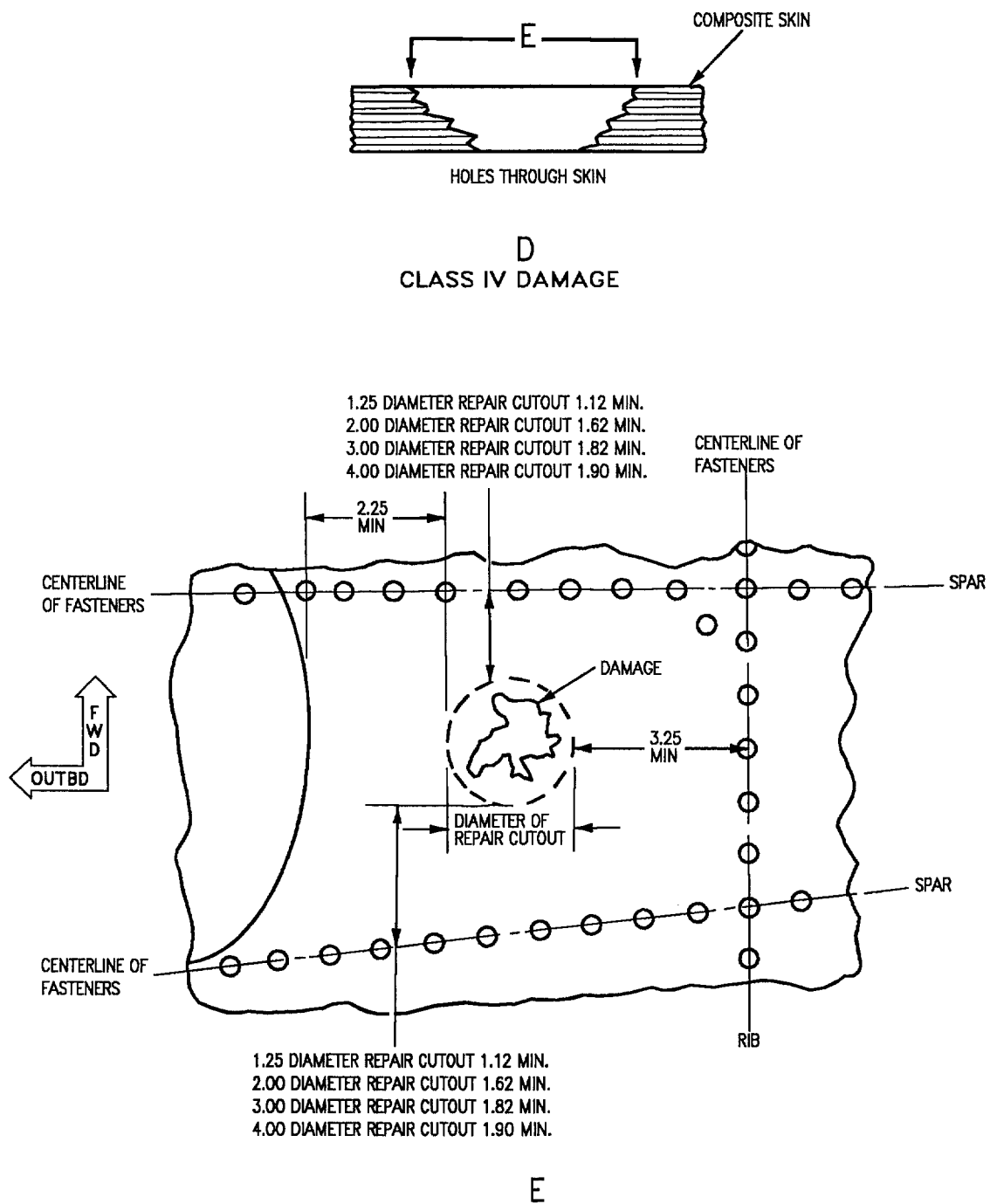
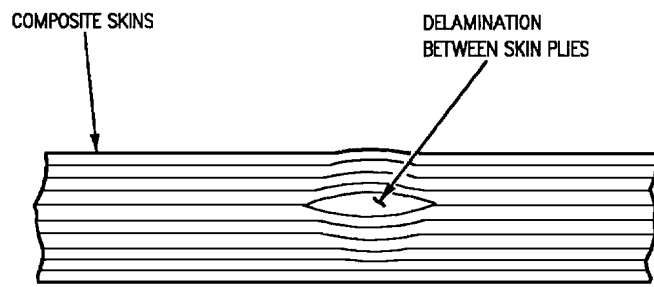


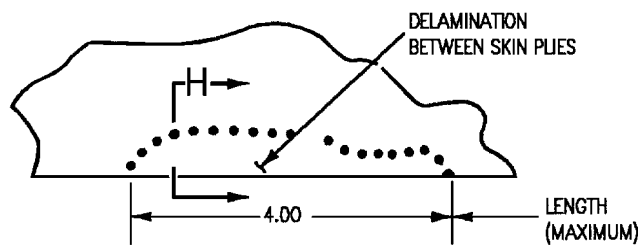
Figure 4. Repairable Damage (Sheet 2)





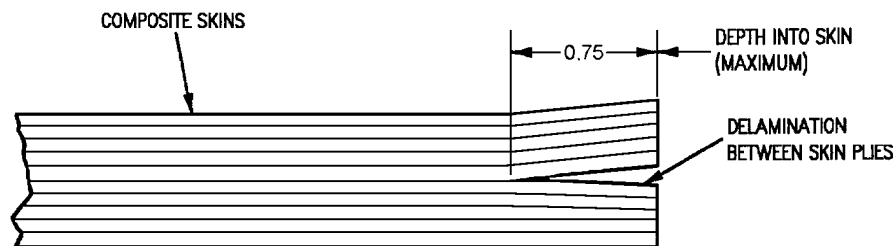
NOT OPEN TO EDGE

F



OPEN TO EDGE

G



OPEN TO EDGE

H

CLASS V DAMAGE

Figure 4. Repairable Damage (Sheet 3)

## 12. REPLACEMENT.

13. **COVER (DOOR 83).** On 161353 THRU 161987, cover is replaceable. Replacement of cover (door 83) requires depot tooling (WP013 02). On 162394 AND UP, cover is interchangeable. Apply finish system and markings (A1-F18AC-SRM-500, WP027 00). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For repair of gang channel and plate nut and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 009 00). Install removable fasteners wet with MIL-S-83430 sealing compound.

14. **SKIN (DOOR 84).** Skin is replaceable. On 161353 THRU 161713, requires trimming on forward and outboard edges. On 161714 AND UP, require trimming on inboard edge. Refinish trimmed edges (A1-F18AC-SRM-500, WP027 00). Drilling requires depot tooling (WP013 02). Apply finish system and markings (A1-F18AC-SRM-500, WP027 00). For form in place sealing (A1-F18AC-SRM-500, WP010 00). Make sure all mating structure is sealed. For repair of gang and bonding with bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

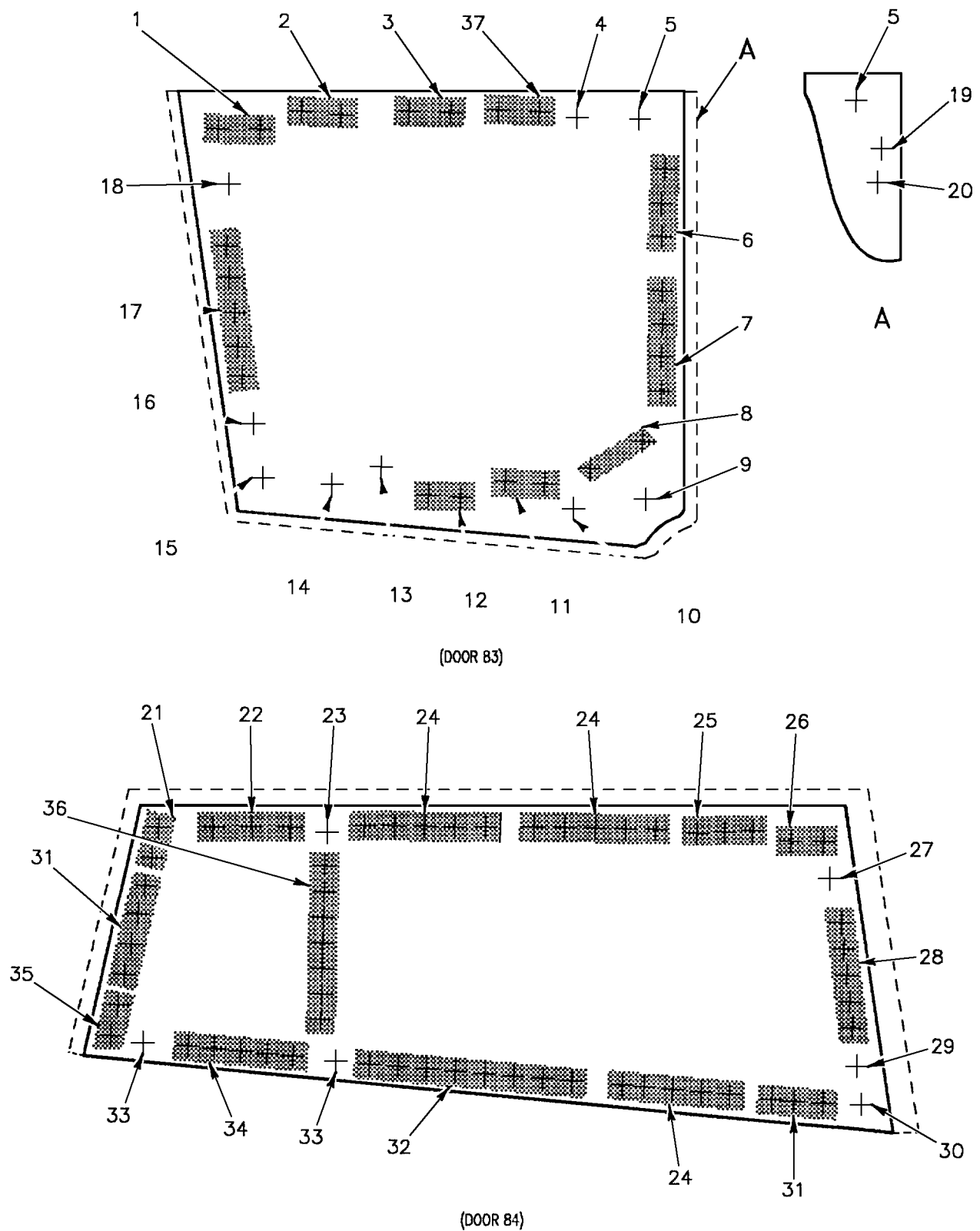


Figure 5. Cover (Door 83), Skin (Door 84) Replacement (Sheet 1)

Idx No.	Eft		Nomenclature	Part Number
1	<div>21</div> <div>12</div> <div>6</div>	<div>1</div> <div>1</div> <div>7</div>	<div>2</div> Gang Channel <div>2</div> Gang Channel <div>2</div> Gang Channel	G18421JL2-5-10 G18421JL1-5-10 G18421JL1-5-10
2	<div>21</div> <div>12</div> <div>6</div> <div>16</div>	<div>3</div> <div>3</div> <div>8</div>	<div>4</div> Gang Channel <div>4</div> Gang Channel <div>4</div> Gang Channel Shim	G18421JL4-4-10 G18421JL2-4-10 G18421JL2-4-10 4M49A4PM10-2
3	<div>9</div> <div>20</div> <div>12</div> <div>6</div> <div>11</div>	<div>3</div> <div>3</div> <div>3</div> <div>8</div>	<div>4</div> Gang Channel <div>4</div> Gang Channel <div>4</div> Gang Channel <div>4</div> Gang Channel Spacer	G18421JL2-4-10 G18421JL1-4-10 G18421JL2-4-10 G18421JL2-4-10 74A150755-2427, 2428
4	<div>21</div> <div>12</div> <div>6</div>	<div>1</div> <div>1</div> <div>7</div>	<div>13</div> Plate Nut <div>13</div> Plate Nut <div>13</div> Plate Nut	F49251E5-4 F49251E5-3 F49251E5-3
5	<div>21</div> <div>12</div> <div>6</div>	<div>1</div> <div>1</div> <div>7</div>	<div>13</div> Plate Nut <div>13</div> Plate Nut <div>13</div> Plate Nut	F49249E5-2 F49249E5-3 F49249E5-3
6	<div>15</div> <div>15</div> <div>12</div> <div>26</div> <div>27</div> <div>16</div>	<div>3</div> <div>3</div> <div>8</div> <div>8</div>	<div>14</div> Gang Channel Shim <div>14</div> Gang Channel <div>14</div> Gang Channel <div>14</div> Gang Channel Shim	G18421JL4-4-8 74A150755-2377 G18421JL3-4-7 G18421JL3-4-7 74B11051-2025 4M49A4K-7-3
7	<div>5</div> <div>26</div> <div>27</div>	<div>3</div> <div>8</div> <div>8</div>	<div>14</div> Gang Channel <div>14</div> Gang Channel <div>14</div> Gang Channel	G18421JL2-4-8 G18421JL2-4-8 74B11051-2027
8	<div>5</div> <div>6</div> <div>21</div> <div>15</div> <div>22</div>	<div>1</div> <div>7</div>	<div>13</div> Gang Channel <div>13</div> Gang Channel Shim Shim Shim	G18421JL4-5-14 G18421JL4-5-14 4M49F5KM14-2 4M49L5K12-1 4M49F5K12-1
9	<div>21</div> <div>12</div> <div>6</div>	<div>1</div> <div>1</div> <div>7</div>	<div>2</div> Plate Nut <div>2</div> Plate Nut <div>2</div> Plate Nut	F49251E5-4 F49251E5-3 F49251E5-3
10	<div>21</div> <div>12</div> <div>6</div>	<div>3</div> <div>3</div> <div>8</div>	<div>14</div> Plate Nut <div>14</div> Plate Nut <div>14</div> Plate Nut	F49251E4-4 F49251E4-3 F49251E4-3
11	<div>21</div> <div>12</div> <div>6</div>	<div>3</div> <div>3</div> <div>8</div>	<div>4</div> Gang Channel <div>4</div> Gang Channel <div>4</div> Gang Channel	G18421JL4-4-9 G18421JL3-4-9 G18421JL3-4-9

Figure 5. Cover (Door 83), Skin (Door 84) Replacement (Sheet 2)




































































































Idx No.	Eft		Nomenclature	Part Number
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13	  	  	 Plate Nut  Plate Nut  Plate Nut	F49249E4-4 F49249E4-2 F49249E4-2
14	   	  	 Plate Nut  Plate Nut  Plate Nut Spacer	F49251E5-4 F49251E5-3 F49251E5-3 4M30E516-125
15	   	   	 Plate Nut  Plate Nut  Plate Nut  Plate Nut	F50403-5-6 F50403-5-4 F50403-5-4 F50403-5-4
16	  	  	 Plate Nut  Plate Nut  Plate Nut	F50403-4-4 F50403-4-2 F50403-4-2
17	  	  	 Gang Channel  Gang Channel  Gang Channel	G18421JL6-4-8 G18421JL3-4-8 G18421JL3-4-8
18	 	 	 Plate Nut  Plate Nut	F49249E5-6 F49249E5-6
19	     		Clip Nut   Channel  Shim  Plate Nut  Shim	K49300-5 G18421L6-5 ST3M465N15D2X 74A150755-2423 F50403-5-6 74A150755-2425
20	     	    	Clip Nut   Channel  Shim  Plate Nut  Shim	K49300-4 G18421L6-4 ST3M465N15D2X 74A150755-2423 F49249E4-3 74A150755-2425
21			 Gang Channel	G18421JL4-4-10
22			 Gang Channel	G18421JL6-4-11
23			 Plate Nut	F50403-4-6
24			 Gang Channel	G18421JL6-4-9
25			 Gang Channel	G18421JL6-4-12

Figure 5. Cover (Door 83), Skin (Door 84) Replacement (Sheet 3)

































Idx No.	Eft		Nomenclature	Part Number
26			 Gang Channel	G18421JL3-5-10
27			 Plate Nut	F50339-4-4
28			 Gang Channel	G18421JL6-4-8
29			 Plate Nut	F14427-4-4
30			 Plate Nut Spacer	F50403-5-6 4M30C516-032
31			 Gang Channel	G18421JL6-4-10
32			 Gang Channel	G18421JL6-4-9
33			 Plate Nut	F50339-4-6
34			 Gang Channel	G18421JL6-4-8
35			 Gang Channel	G18421JL4-4-10
36		 	 Gang Channel Shim	G18421JL6-4-8 4M49A4DM8-7
37	  	  	 Gang Channel  Gang Channel  Gang Channel	G18421JL4-4-10 G18421JL2-4-10 G18421JL2-4-10

Figure 5. Cover (Door 83), Skin (Door 84) Replacement (Sheet 4)

Idx No.	Eft		Nomenclature	Part Number
LEGEND				
1			Hole diameter is 0.31250 +0.0030 -0.0000.	
2			Attached by bonding with MIL-S-8802 Sealing Compound, Class B-1/2 (A1-F18AC-SRM-200, WP011 00) and CSR902B-4 rivet, length determined on installation.	
3			Hole diameter is 0.2500 +0.0030 -0.0000.	
4			Attached by bonding with MIL-S-8802 Sealing Compound, Class B-1/2 (A1-F18AC-SRM-200, WP011 00) and CSR902B-3 rivet, length determined on installation.	
5			161353 THRU 161987.	
6			162394 AND UP.	
7			Hole diameter is 0.3220 +0.0070 -0.0000. Substructure requires different hole size.	
8			Hole diameter is 0.2550 +0.0070 -0.0000. Substructure requires different hole size.	
9			161353 THRU 161708.	
10			161709 THRU 161987.	
11			161709 AND UP.	
12			161949 THRU 161987.	
13			Attached by CSR902B-4 rivet, length determined on installation.	
14			Attached by CSR902B-3 rivet, length determined on installation.	
15			161353 THRU 161361.	
16			161949 AND UP.	
17			161362 AND UP.	
18			161362 THRU 161708.	
19			Used with index 19 and 20,	
20			161709 THRU 161948.	
21			161353 THRU 161948.	
22			161362 THRU 161948.	
23			162394 THRU 162881.	
24			Attached by bonding with MIL-S-8802 Sealing Compound, Class B-1/2 (A1-F18AC-SRM-200, WP011 00) and NAS1399C4A rivet, length determined on installation.	
25			162882 AND UP.	
26			162394 THRU 162431.	
27			162432 AND UP.	
28			Two required.	

Figure 5. Cover (Door 83), Skin (Door 84) Replacement (Sheet 5)





## DEPOT MAINTENANCE

## STRUCTURE REPAIR

## HOLE LOCATING PLATE SETS

RE174150820 (DOOR 84), RE174150826 (DOOR 83)

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Outer Wing External Composite Door, Upper .....	WP013 01
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Structure Repair, General Information .....	A1-F18AC-SRM-200
Accessory Kits and Spray Mist Coolant Tank .....	WP004 16

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Drilling Holes in Door 84 .....	21
Drilling Holes in Door 83 and Substructure .....	14
Drilling Holes in Door 84 and Substructure .....	33
Drilling Holes in Door 83 Substructure .....	8
Drilling Holes in Door 84 Substructure .....	27

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. The plate sets are used on aircraft 161353 THRU 161987 to locate the attach hole pattern on replaceable covers and/or mating substructure. The plate sets are also used on aircraft 162394 AND UP to locate the attach hole pattern on mating substructure for inter-

changeable doors. The plate sets contain high temperature fiberglass bonded assemblies. Hole boards are provided to show holes, hole numbers, repair numbers, and material of cover and substructure. Repair numbers on the hole boards are color coded to coincide with bonded assemblies and applicable repair number work package in

Structure Repair, General Information (A1-F18AC-SRM-200).

3. DRILLING HOLES IN DOOR 83. See figure 1.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 83	RE174150826

Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove damaged door (A1-F18AC-LMM-010).
- b. Select and install RE374000002 dummy fasteners into all substructure fastener holes, view A.
- c. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of new door, view C.
- d. Position sequence A bonded assembly (detail 11) in position on door substructure and align edges for equal spacing, view A.
- e. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into dummy fasteners in substructure, views A and D.



Solder, Wire, Cerrobend

11

- f. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75 percent fill, per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

- g. Remove sequence A bonded assembly (detail 11).
- h. Repeat steps c through f for sequence B bonded assembly (detail 12).
- i. Remove sequence B bonded assembly (detail 12).
- j. Trim replacement door (WP013 01).
- k. Place replacement cover on work surface.
- l. Retract skin thickness adapters (detail 104) on bonded assembly to allow bonded assembly to contact replacement door.
- m. Position sequence A bonded assembly (detail 11) on replacement door and align edges for equal spacing, view B.
- n. Clamp bonded assembly to replacement door.
- o. Drill and ream hole pattern in replacement door using applicable hole board and applicable repair number work package, Structure Repair, General Information (A1-F18AC-SRM-200).
- p. Remove sequence A bonded assembly (detail 11).
- q. Position sequence B bonded assembly (detail 12) on replacement door and pin in place at numbered index holes 551 and 568 using RE374000002 step pins per Table 1, views B and E.
- r. Repeat steps n and o for sequence B bonded assembly (detail 12).
- s. Remove sequence B bonded assembly (detail 12).
- t. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).
- u. Install door (A1-F18AC-LMM-010).

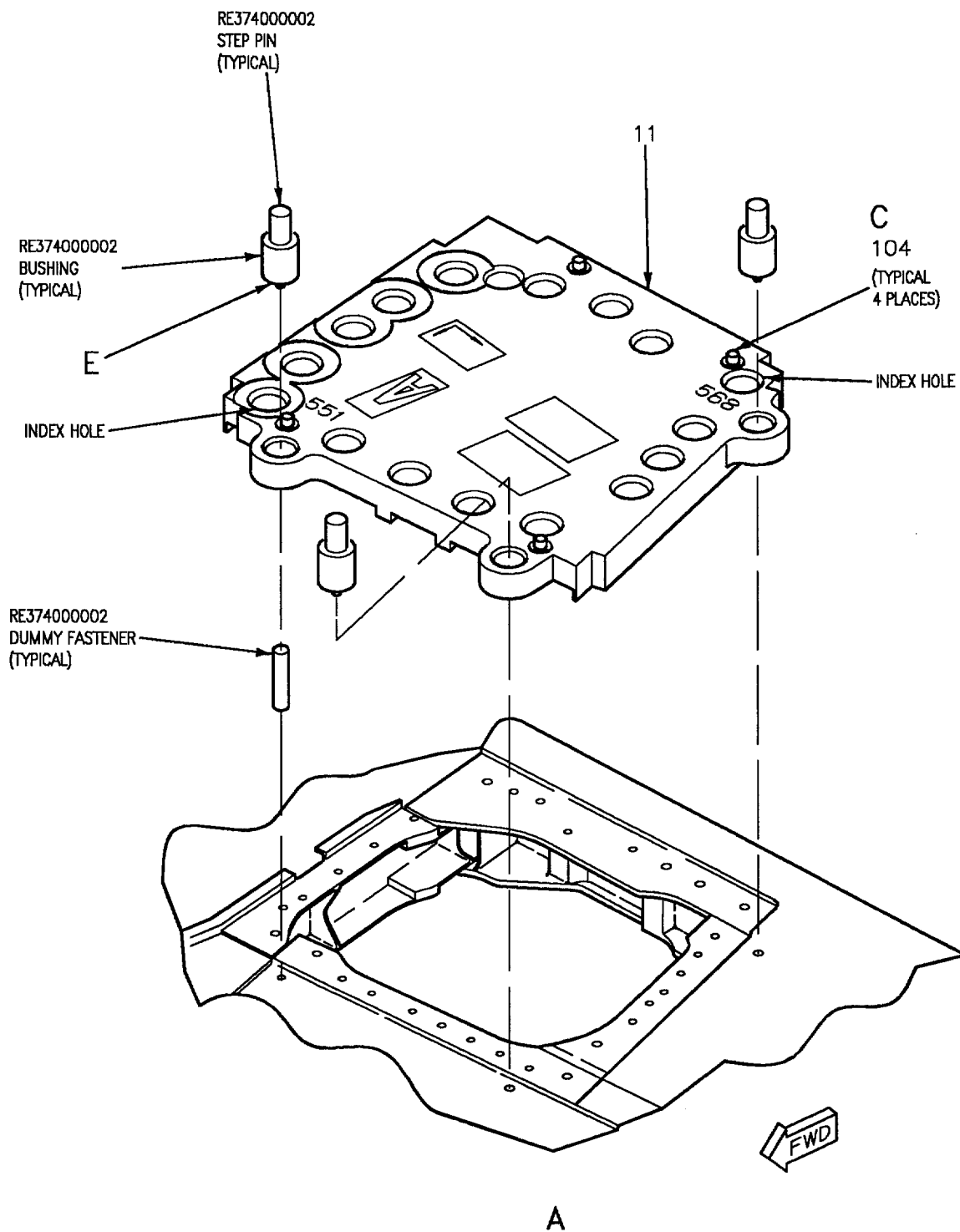
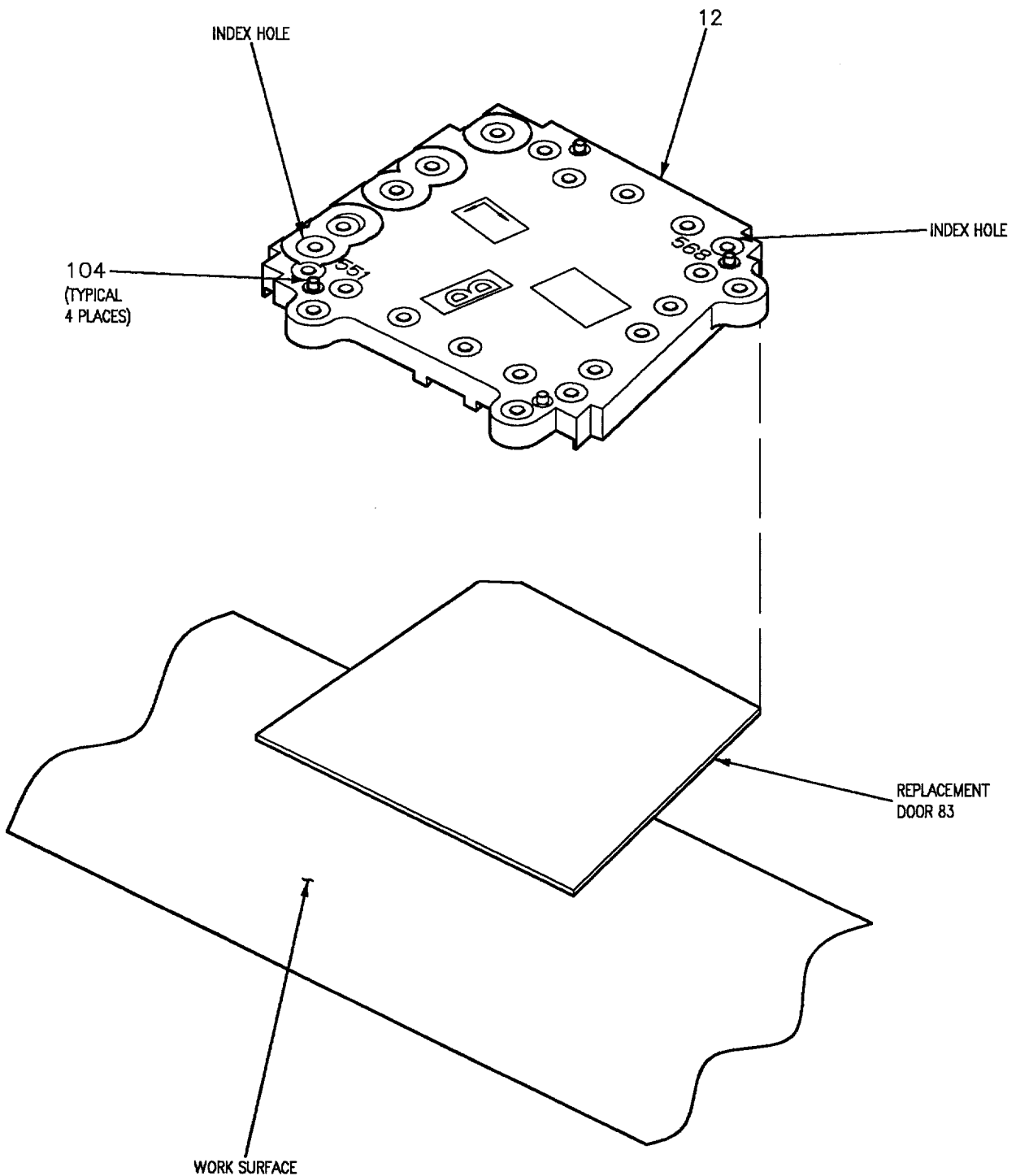
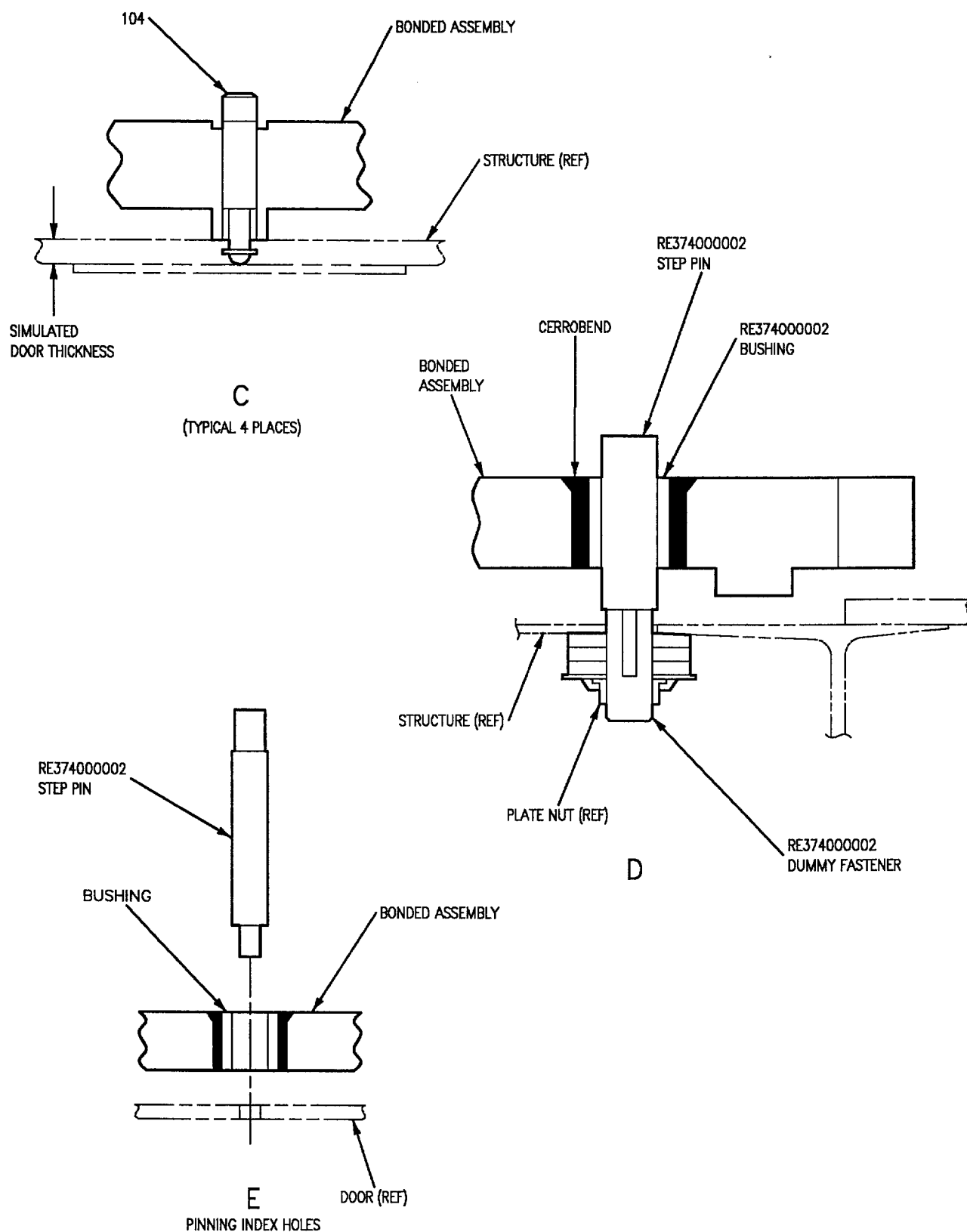


Figure 1. Installation of Plate Set for Drilling Door 83 (Sheet 1)



B

Figure 1. Installation of Plate Set for Drilling Door 83 (Sheet 2)



13020103

Figure 1. Installation of Plate Set for Drilling Door 83 (Sheet 3)

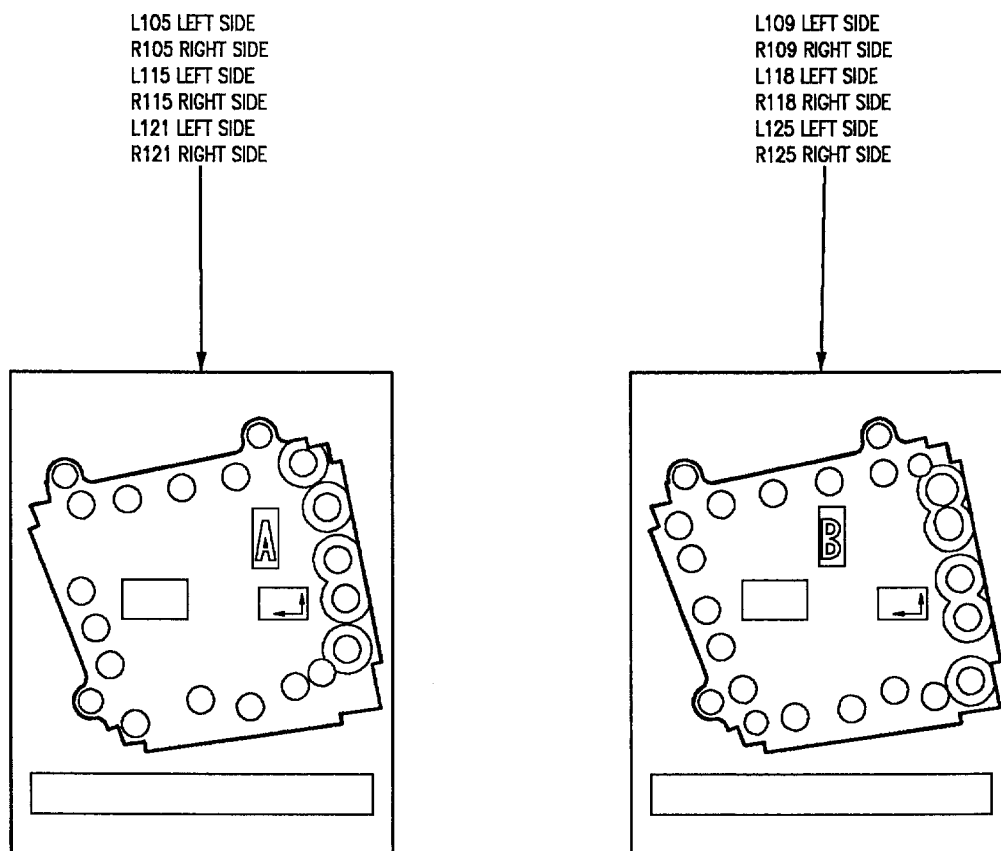


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
1	346	0.2500	126	121
1	361	0.3125	119	121
1	543	0.2500	126	121
2	551	0.3125	119	121
3	551	0.3220	155	121
2	568	0.3125	119	121
3	568	0.3220	155	121

- 1 INDEX HOLES IN SKIN OR STRUCTURE NEXT TO DOOR AREA.  
 2 EFFECTIVITY: 161353 THRU 161987.  
 3 EFFECTIVITY: 162394 AND UP.

Figure 1. Installation of Plate Set for Drilling Door 83 (Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure
L105, R105	Hole Board	Sequence A reference board for effectivity: 161353 THRU 161361
L115, R115	Hole Board	Sequence A reference board for effectivity: 161362 THRU 161948
L121, R121	Hole Board	Sequence A reference board for effectivity: 161949 THRU 161987
L109, R109	Hole Board	Sequence B reference board for effectivity: 161353 THRU 161361
L118, R118	Hole Board	Sequence B reference board for effectivity: 161362 THRU 161948
L125, R125	Hole Board	Sequence B reference board for effectivity: 161949 THRU 161987

Figure 1. Installation of Plate Set for Drilling Door 83 (Sheet 5)

4. DRILLING HOLES IN DOOR 83 SUBSTRUC-  
TURE. See figure 2.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 83	RE174150826

Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove door (A1-F18AC-LMM-010).
- b. Remove and replace damaged substructure.
- c. Retract skin thickness adapters (detail 104) on bonded assembly to allow bonded assembly to contact door.
- d. Place door on work surface.
- e. Position sequence A bonded assembly (detail 11) on door and align edges for equal spacing, view A.
- f. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into holes in door, views A and C.



Solder, Wire, Cerrobend

11

- g. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75 percent fill, per

Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view C.

- h. Remove sequence A bonded assembly (detail 11).
- i. Repeat steps c through g for sequence B bonded assembly (detail 12).
- j. Remove sequence B bonded assembly (detail 12).
- k. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of door, views B and D.
- l. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view B.
- m. Secure bonded assembly in place using clamps, or bolt in place at outer tab index hole locations, view E.
- n. Drill and ream hole pattern in replacement structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).
- o. Remove sequence A bonded assembly (detail 11).
- p. Position sequence B bonded assembly (detail 12) on structure and pin in place at numbered index holes 551 and 568 using RE374000002 step pins per Table 1, views B and F.
- q. Repeat steps m and n for sequence B bonded assembly (detail 12).
- r. Remove sequence B bonded assembly (detail 12).
- s. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).
- t. Install door (A1-F18AC-LMM-010).



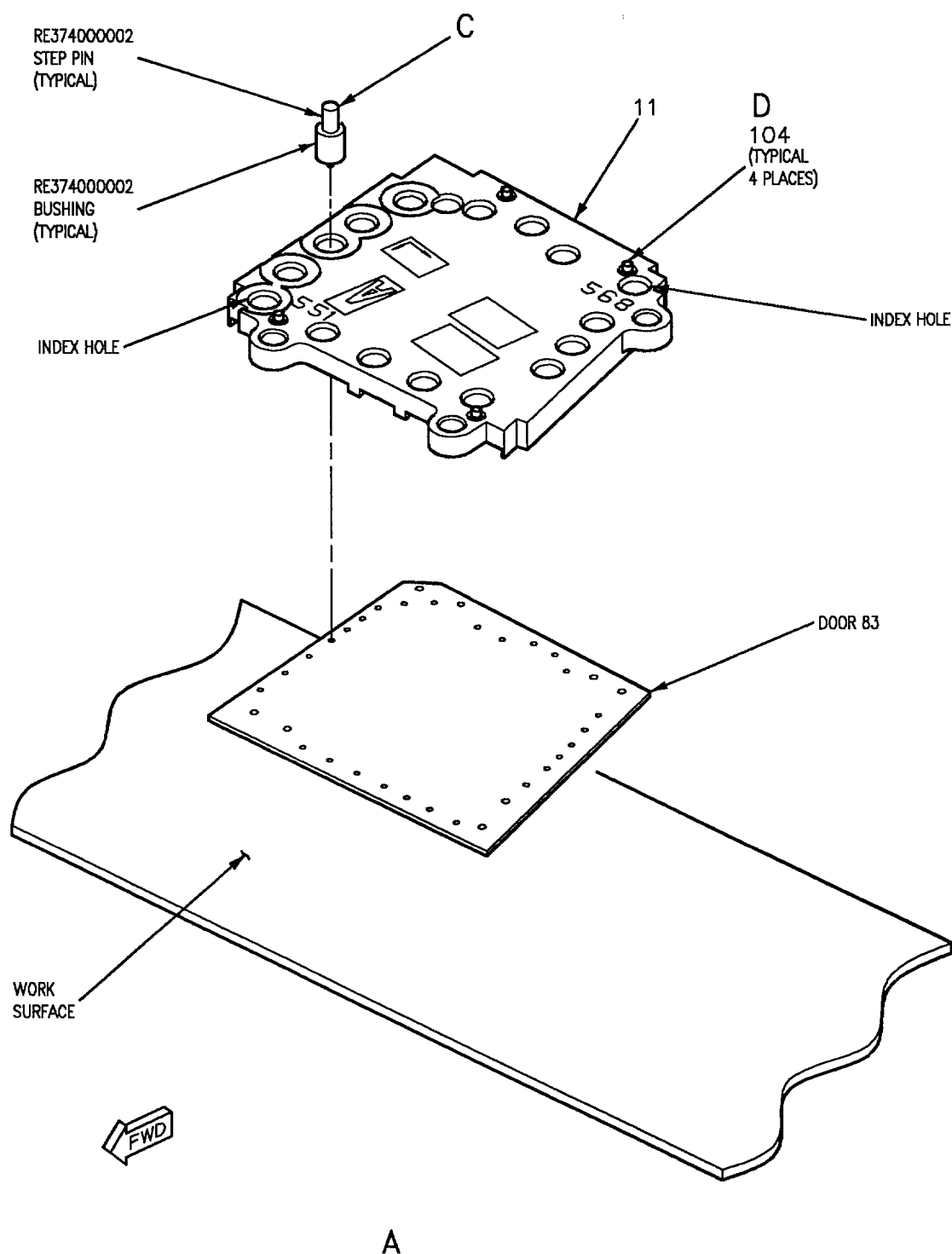


Figure 2. Installation of Plate Set for Drilling Door 83 Substructure (Sheet 1)

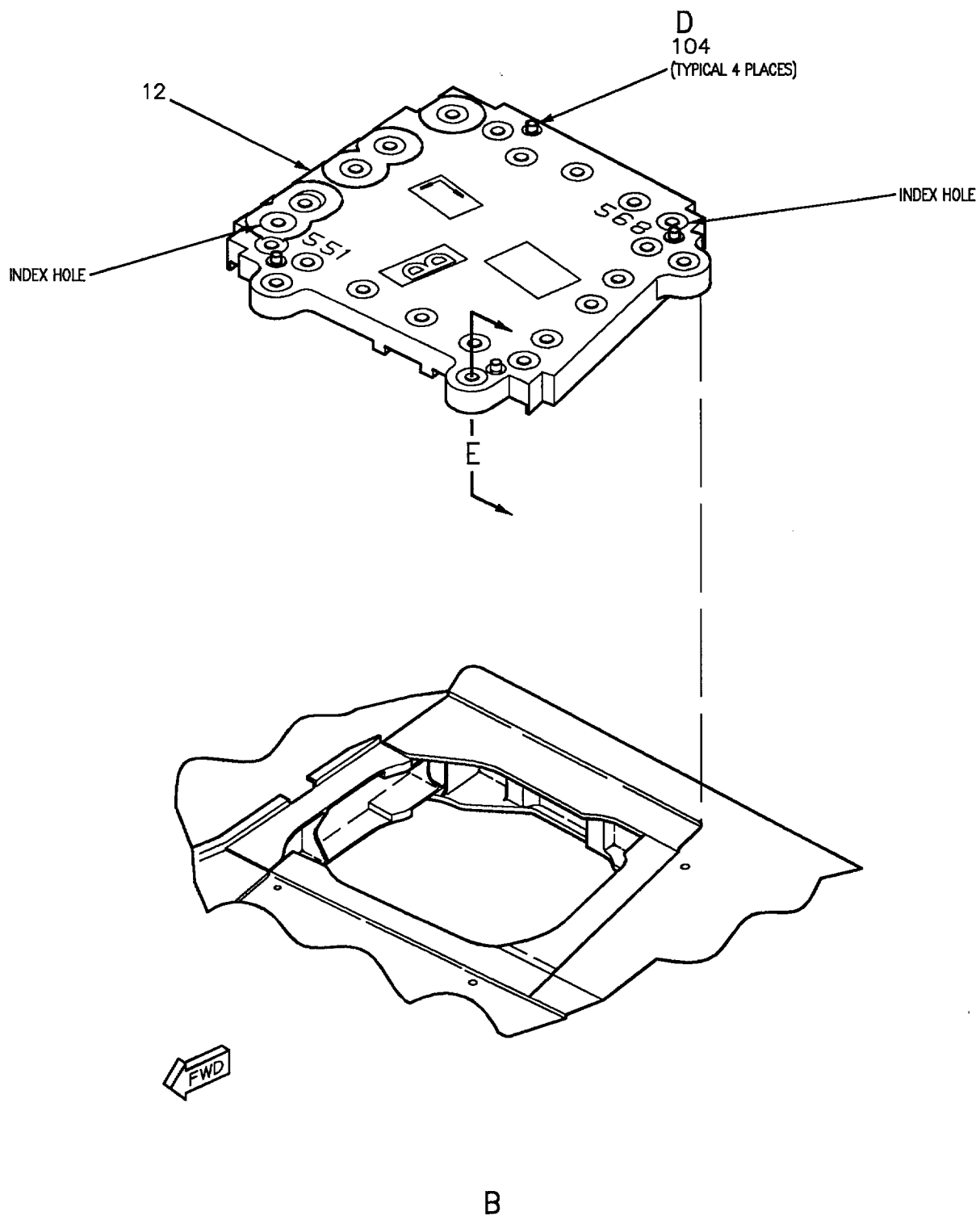
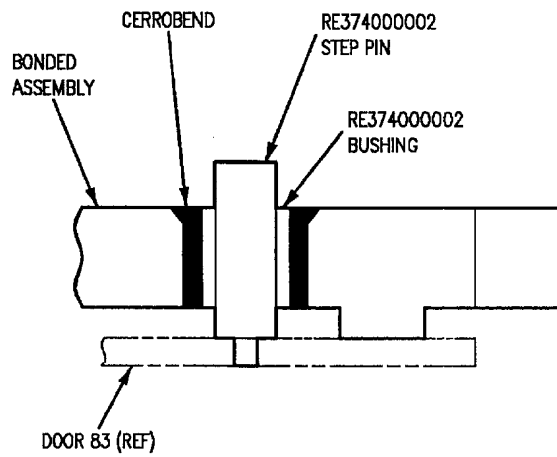
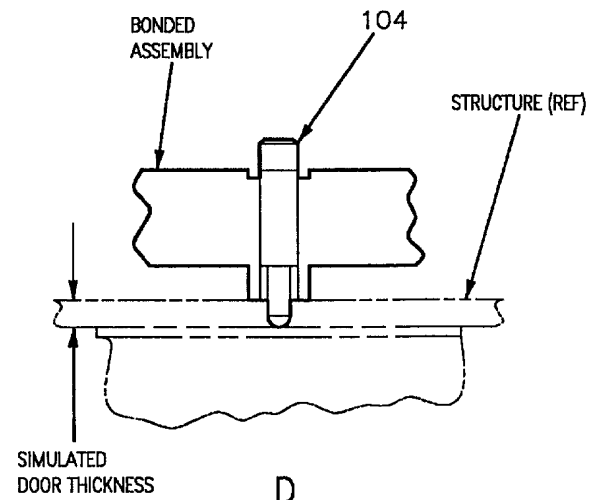


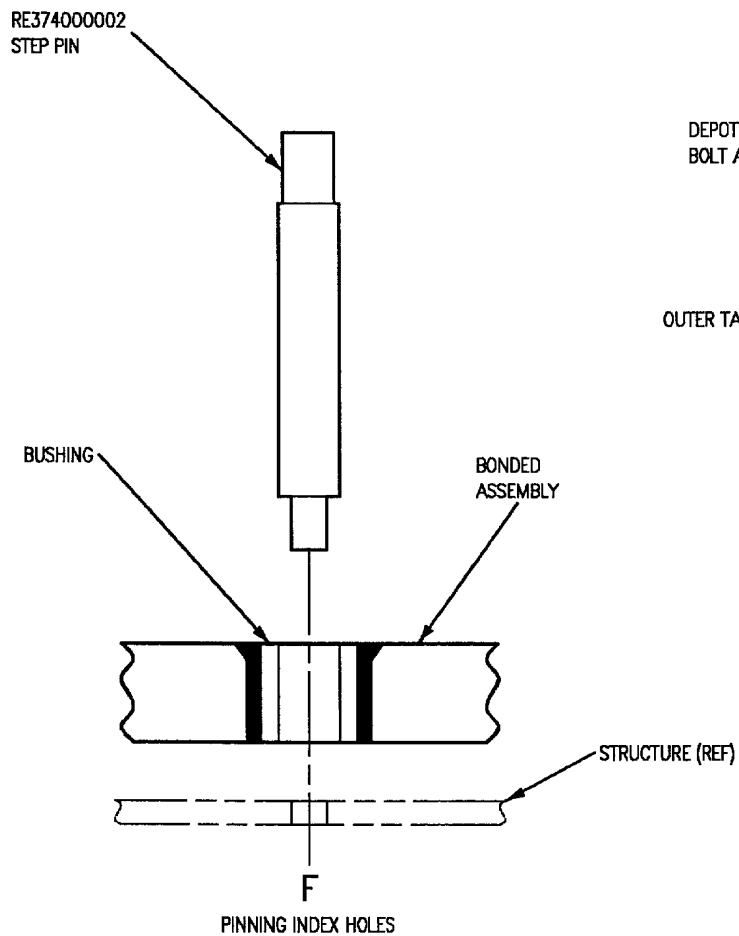
Figure 2. Installation of Plate Set for Drilling Door 83 Substructure (Sheet 2)



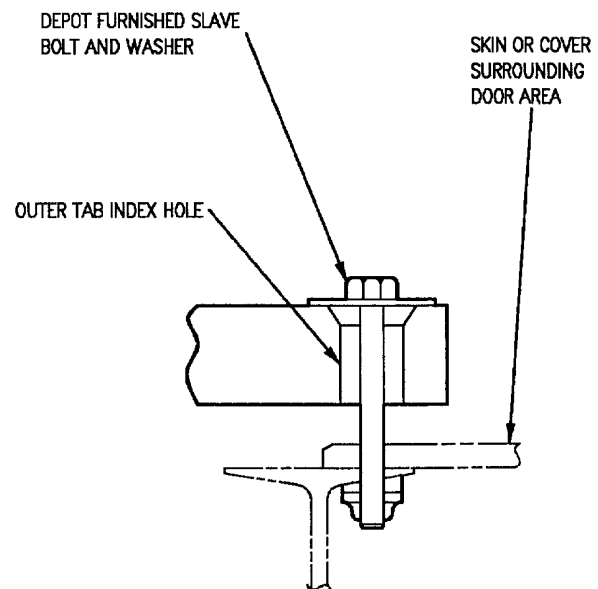
C



D



F



E

Figure 2. Installation of Plate Set for Drilling Door 83 Substructure (Sheet 3)

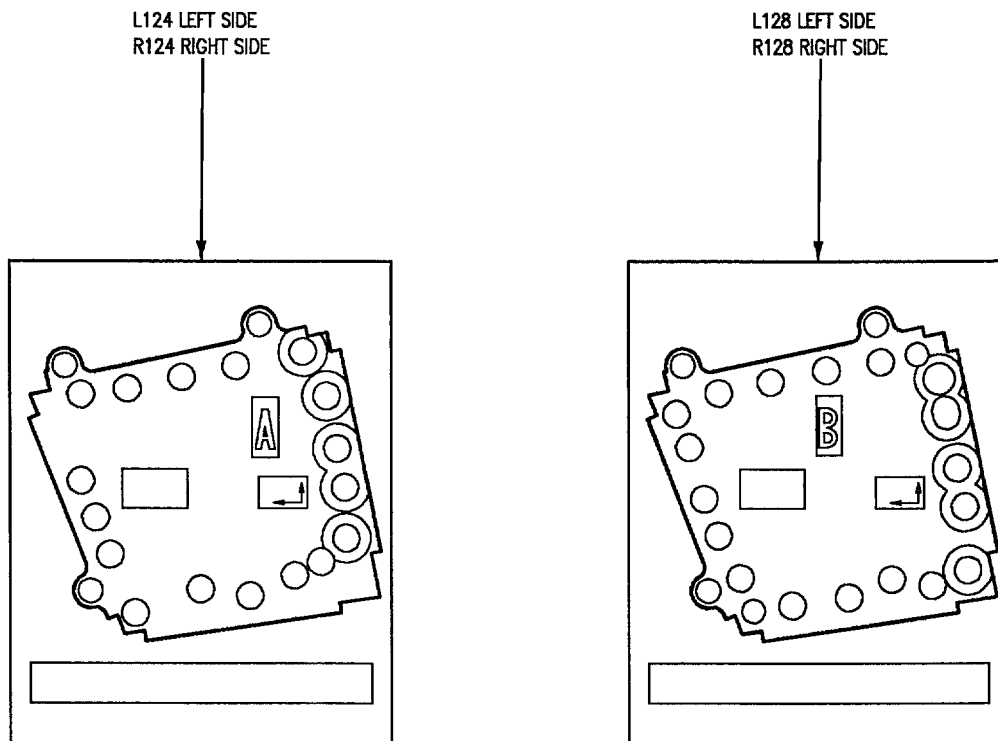





TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
  	346	0.2500	126	121
	361	0.3125	119	121
	543	0.2500	126	121
	551	0.3220	155	121
	568	0.3220	155	121


 INDEX HOLES IN SKIN OR STRUCTURE NEXT TO DOOR AREA.

Figure 2. Installation of Plate Set for Drilling Door 83 Substructure (Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L124, R124	Hole Board	Sequence A reference board for effectivity: 162394 AND UP.
L128, R128	Hole Board	Sequence B reference board for effectivity: 162394 AND UP.

Figure 2. Installation of Plate Set for Drilling Door 83 Substructure (Sheet 5)

## 5. DRILLING HOLES IN DOOR 83 AND SUB-STRUCTURE. See figure 3.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 83	RE174150826

### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

a. Remove damaged door 83 (A1-F18AC-LMM-010).

b. Remove and replace damaged substructure.

c. Lay out fastener pattern on substructure or use an undamaged door as a template to mark fastener pattern on substructure.

(1) If damaged door is used as a template, mark location of each fastener hole on structure through existing fastener holes of door.

(2) Inspect marked hole locations for correct edge distance.

d. Pilot drill hole pattern in structure.

e. Remove numbered fasteners 346, 361, and 543 from skin and door, view A mate tabs on bonded assembly.

f. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of door, views A and C.

g. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view A.

h. Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into holes in structure, views A and D.

i. Install applicable RE374000002 step pins and bushings through outer tabs of bonded assembly and into fastener holes, views A and E.



Solder, Wire, Cerrobend

11

j. Pot bushings in bonded assembly using melted cerrobend with a minimum of 75 percent fill, per Hole Location Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

k. Remove sequence A bonded assembly (detail 11).

l. Repeat steps f through j for sequence B bonded assembly (detail 12).

m. Remove sequence B bonded assembly (detail 12).

n. Trim replacement door (WP013 01).

o. Position replacement door in place on structure, view B.

p. Retract skin thickness adapters (detail 104) on bonded assemblies to allow bonded assembly to contact door.

q. Position sequence A bonded assembly (detail 11) on door and pin at two outer tab index hole locations using RE374000002 step pins per Table 1, views B and E.

r. Secure bonded assembly and door in place using clamps, and bolt in place at two remaining outer tab index hole locations, view F.

s. Drill and ream hole pattern in replacement door and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-pins per Table 2 after drilling each hole to prevent door from shifting, view G.

t. Remove sequence A bonded assembly (detail 11).

u. Position sequence B bonded assembly (detail 12) on door and pin in place at numbered index holes 551 and 568 using RE374000002 step pins per Table 1, view H.

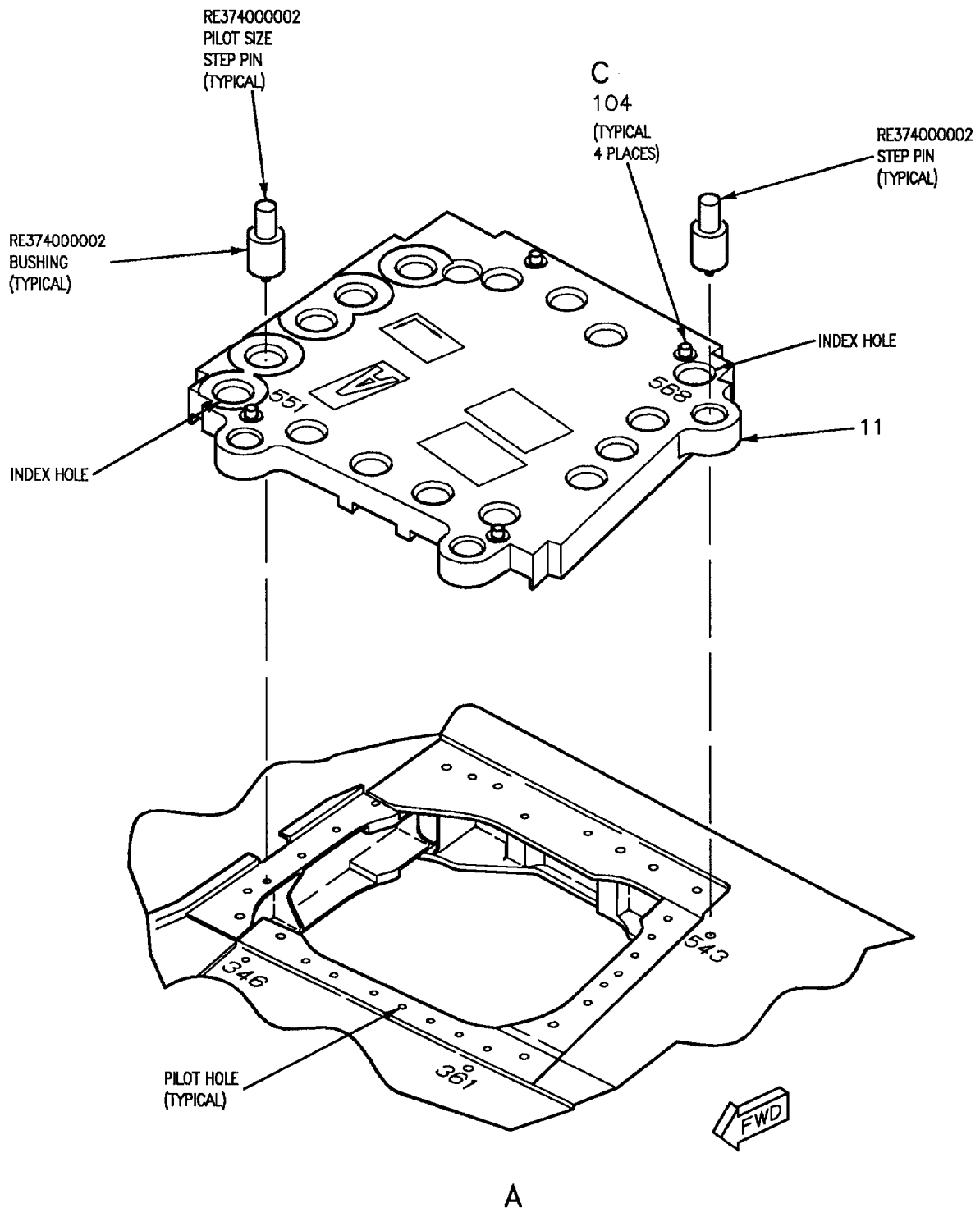
v. Secure bonded assembly in place using clamps, and bolt in place at outer tab index hole locations, view F.

w. Drill and ream hole pattern in replacement door and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-pins per Table 2 after drilling each hole to prevent doors from shifting, view G.

x. Remove sequence B bonded assembly (detail 12).

y. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).

z. Install door (A1-F18AC-LMM-010).



13020301

Figure 3. Installation of Plate Set for Drilling Door 83 and Substructure (Sheet 1)



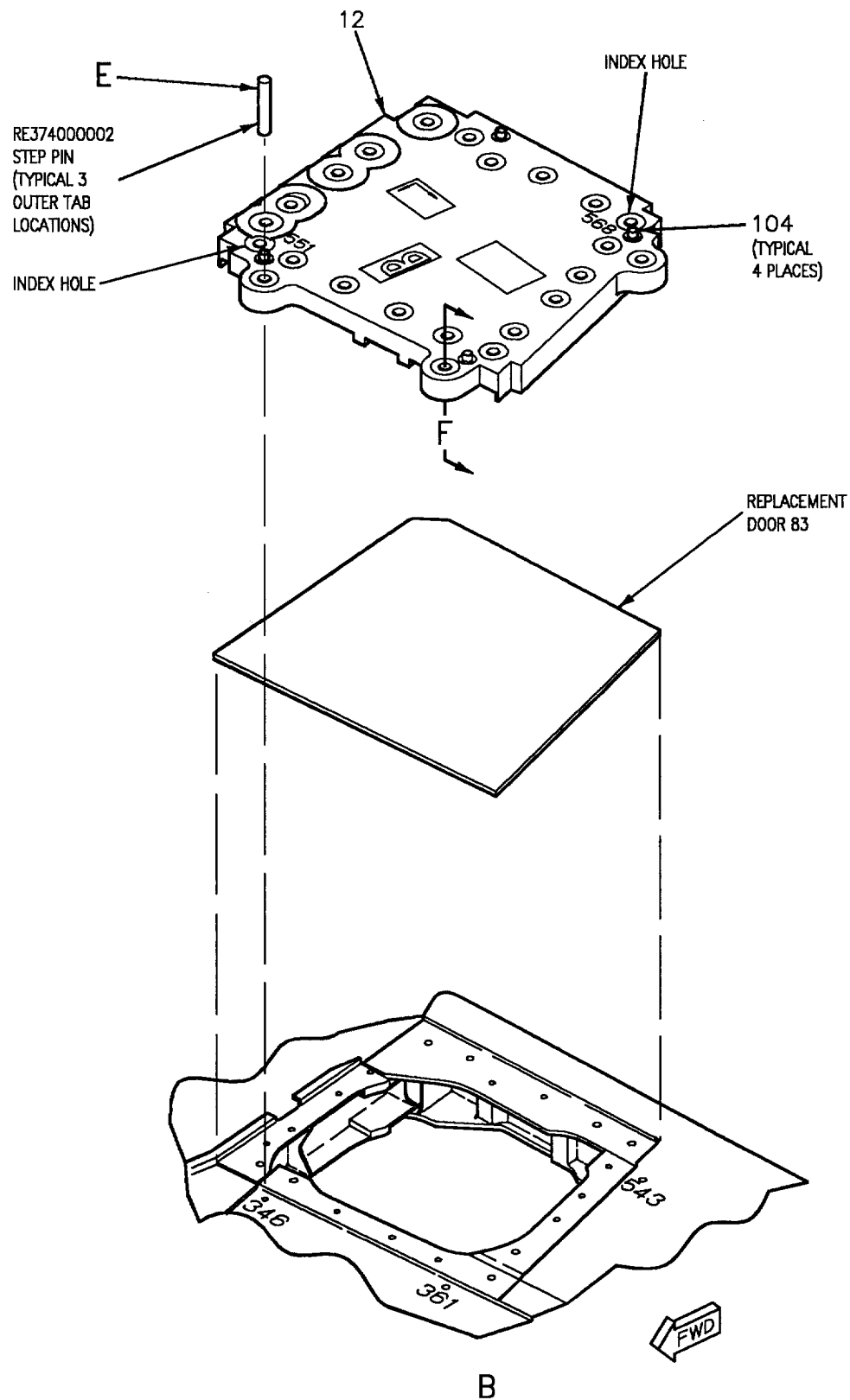
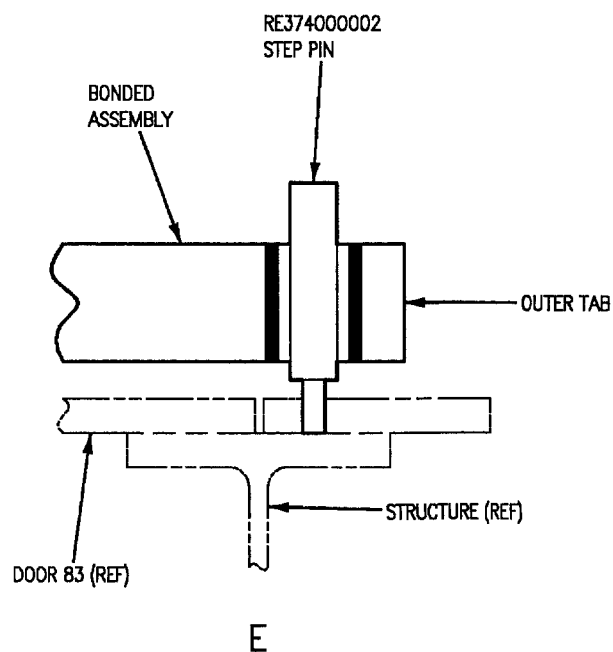
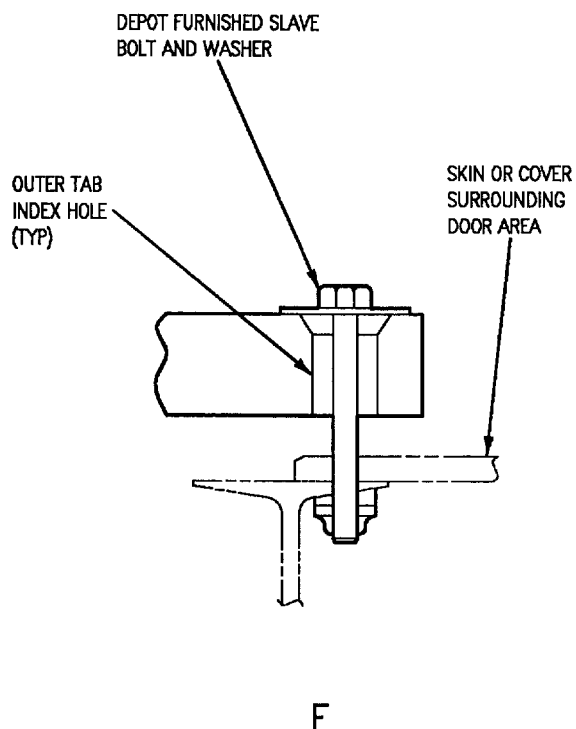
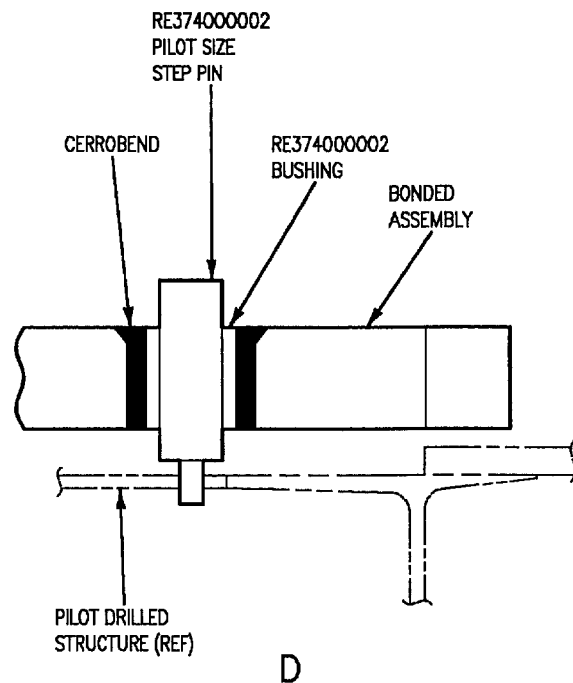
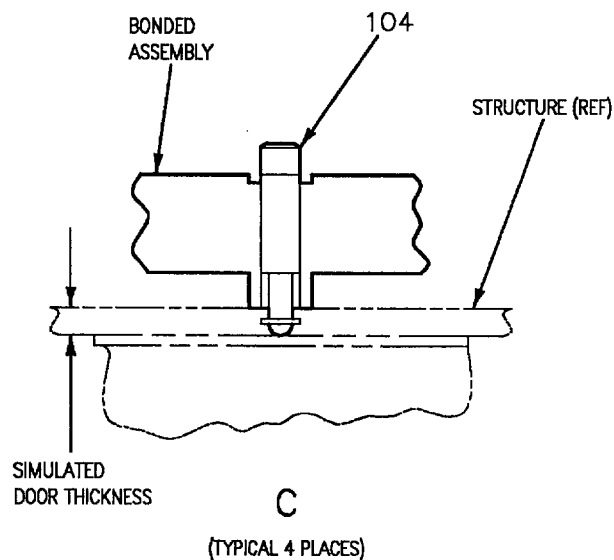
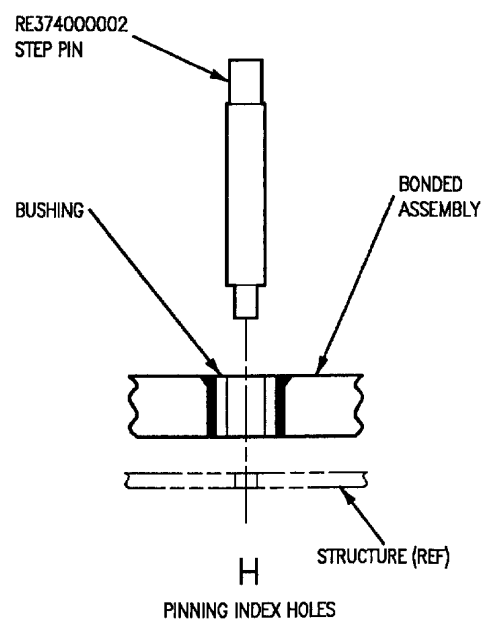
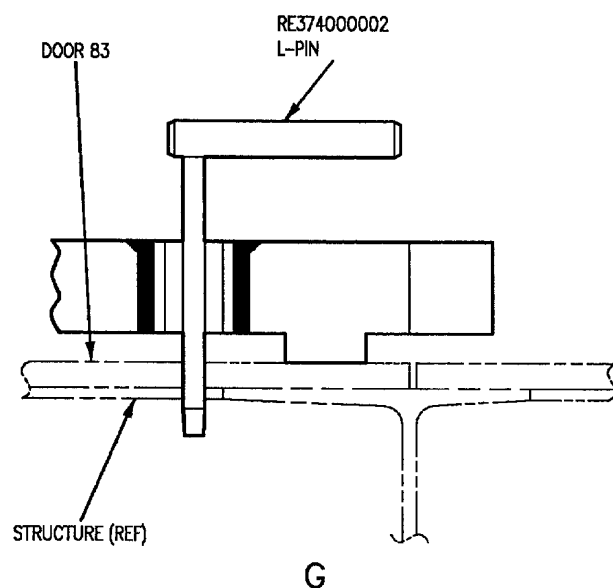


Figure 3. Installation of Plate Set for Drilling Door 83 and Substructure (Sheet 2)

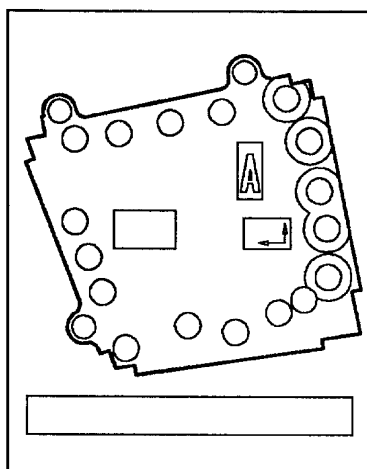


13020303

Figure 3. Installation of Plate Set for Drilling Door 83 and Substructure (Sheet 3)



L107 LEFT SIDE  
R107 RIGHT SIDE  
L117 LEFT SIDE  
R117 RIGHT SIDE  
L123 LEFT SIDE  
R123 RIGHT SIDE



L111 LEFT SIDE  
R111 RIGHT SIDE  
L120 LEFT SIDE  
R120 RIGHT SIDE  
L127 LEFT SIDE  
R127 RIGHT SIDE

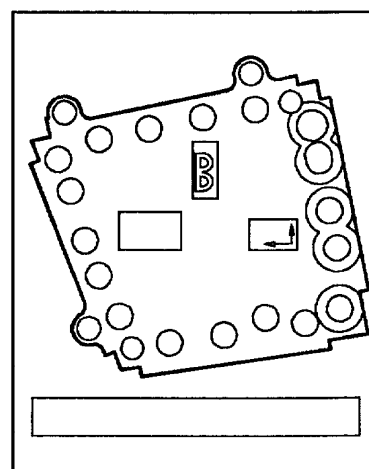


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
1	346	0.2500	126	121
1	361	0.3125	119	121
1	543	0.2500	126	121
2	551	0.3125	119	121
3	551	0.3220	155	121
2	568	0.3125	119	121
3	568	0.3220	155	121

- 1 INDEX HOLES IN SKIN OR STRUCTURE NEXT TO DOOR AREA.  
2 EFFECTIVITY: 161353 THRU 161987.  
3 EFFECTIVITY: 162394 AND UP.

13020304

Figure 3. Installation of Plate Set for Drilling Door 83 and Substructure (Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L107, R107	Hole Board	Sequence A reference board for effectivity: 161353 THRU 161361
L117, R117	Hole Board	Sequence A reference board for effectivity: 161362 THRU 161948
L123, R123	Hole Board	Sequence A reference board for effectivity: 161949 THRU 161987
L111, R111	Hole Board	Sequence B reference board for effectivity: 161353 THRU 161361
L120, R120	Hole Board	Sequence B reference board for effectivity: 161362 THRU 161948
L127, R127	Hole Board	Sequence B reference board for effectivity: 161949 THRU 161987

Figure 3. Installation of Plate Set for Drilling Door 83 and Substructure (Sheet 5)

6. DRILLING HOLES IN DOOR 84. See figure 4.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 84	RE174150820

Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove damaged door (A1-F18AC-LMM-010).
- b. Select and install RE374000002 dummy fasteners into all substructure fastener holes, view A.
- c. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of new door, view C.
- d. Position sequence A bonded assembly (detail 11) in position on door substructure and align edges for equal spacing, view A.
- e. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into dummy fasteners in substructure, views A and D.



Solder, Wire, Cerrobend

11

f. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75 percent fill, per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.

- g. Remove sequence A bonded assembly (detail 11).
- h. Repeat steps c through f for sequence B bonded assembly (detail 12).
- i. Remove sequence B bonded assembly (detail 12).
- j. Trim replacement door (WP013 01).
- k. Place replacement cover on work surface.
- l. Retract skin thickness adapters (detail 104) on bonded assembly to allow bonded assembly to contact replacement door.
- m. Position sequence A bonded assembly (detail 11) on replacement door and align edges for equal spacing, view B.
- n. Clamp bonded assembly to replacement door.
- o. Drill and ream hole pattern in replacement door using applicable hole board and applicable repair number work package, Structure Repair, General Information (A1-F18AC-SRM-200).
- p. Remove sequence A bonded assembly (detail 11).
- q. Position sequence B bonded assembly (detail 12) on replacement door and pin in place at numbered index holes 518 and 532 using RE374000002 step pins per Table 1, views B and E.
- r. Repeat steps n and o for sequence B bonded assembly (detail 12).
- s. Remove sequence B bonded assembly (detail 12).
- t. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).
- u. Install door (A1-F18AC-LMM-010).

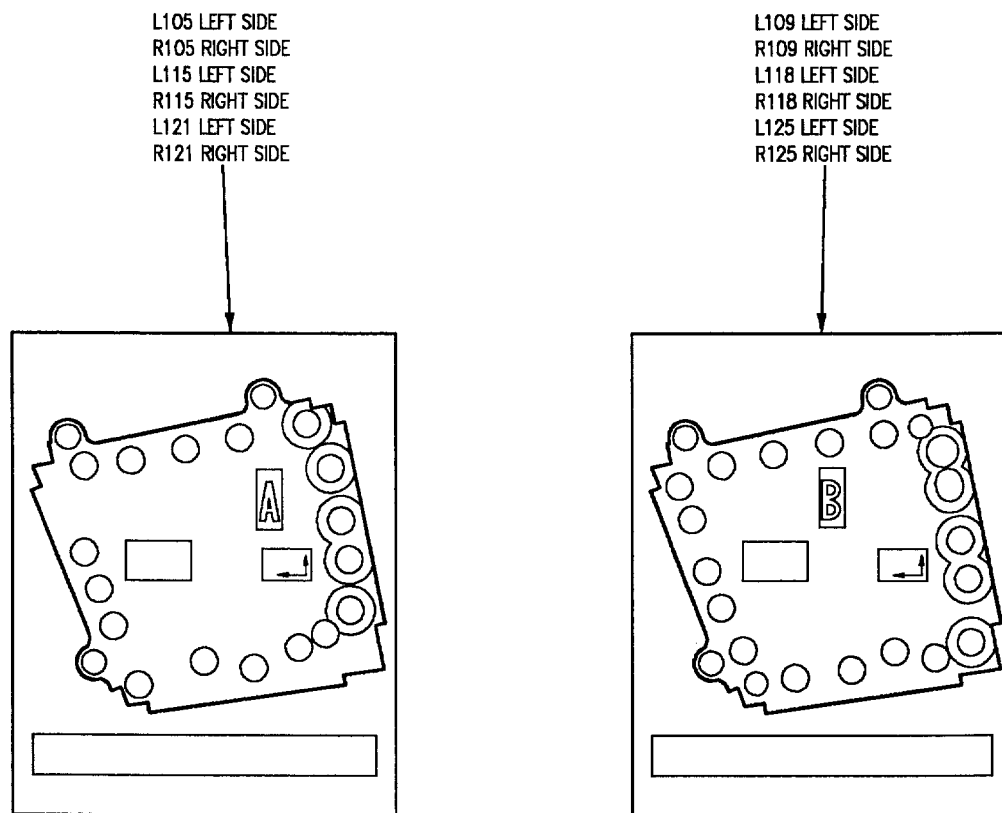


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
1	346	0.2500	126	121
1	361	0.3125	119	121
1	543	0.2500	126	121
2	551	0.3125	119	121
3	551	0.3220	155	121
2	568	0.3125	119	121
3	568	0.3220	155	121

- 1 INDEX HOLES IN SKIN OR STRUCTURE NEXT TO DOOR AREA.  
 2 EFFECTIVITY: 161353 THRU 161987.  
 3 EFFECTIVITY: 162394 AND UP.

Figure 4. Installation of Plate Set for Drilling Door 84 (Sheet 1)

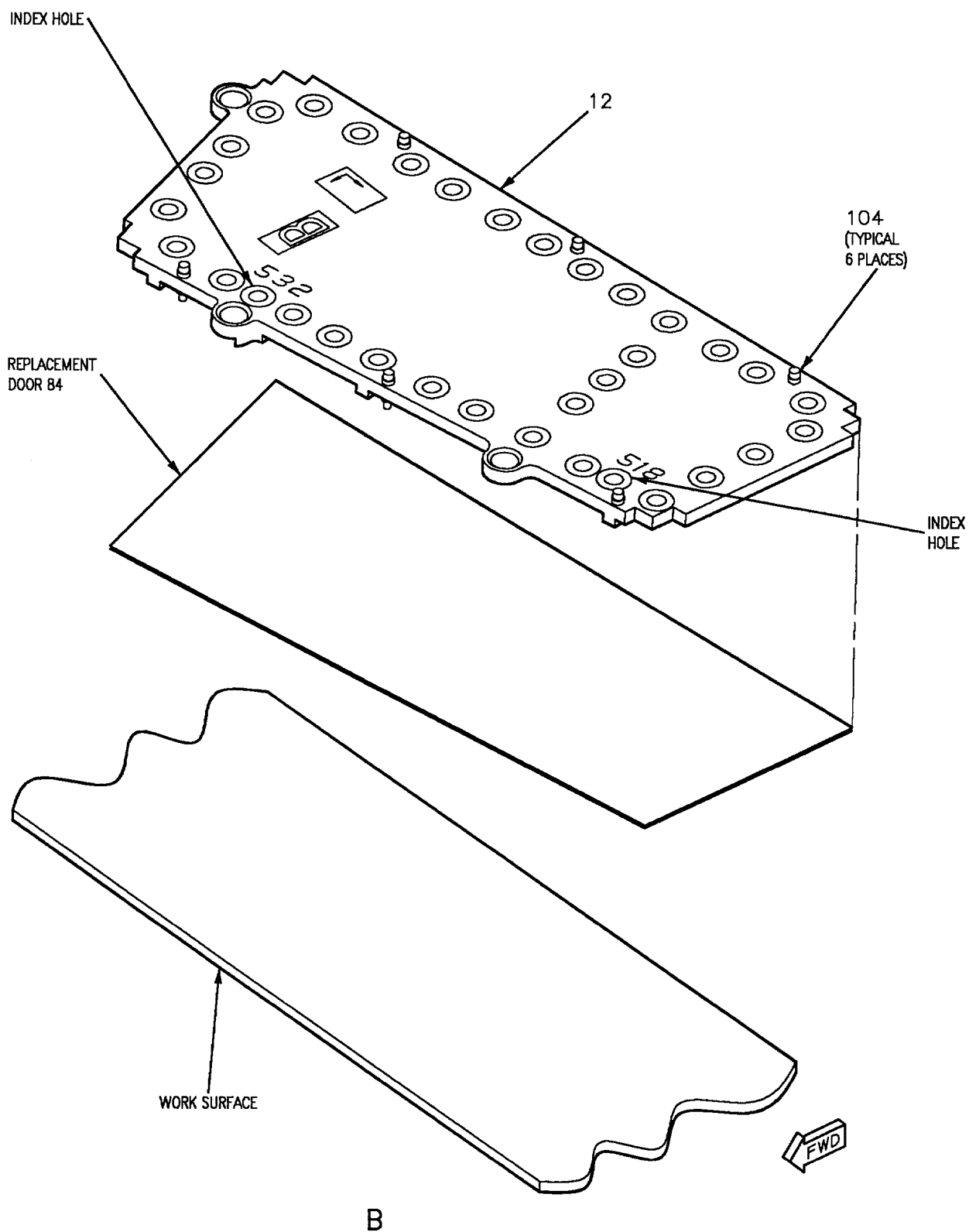
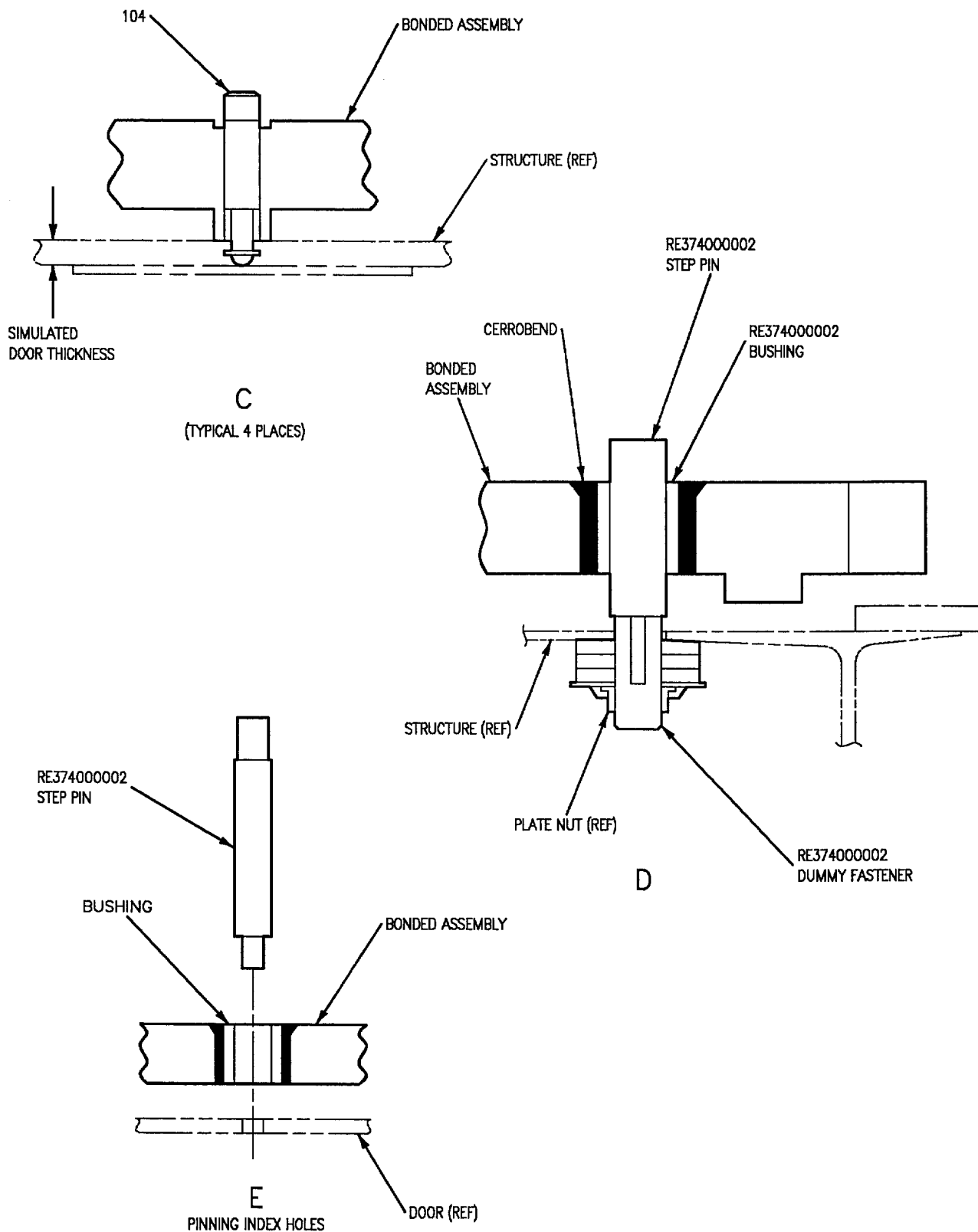


Figure 4. Installation of Plate Set for Drilling Door 84 (Sheet 2)



13020403

Figure 4. Installation of Plate Set for Drilling Door 84 (Sheet 3)



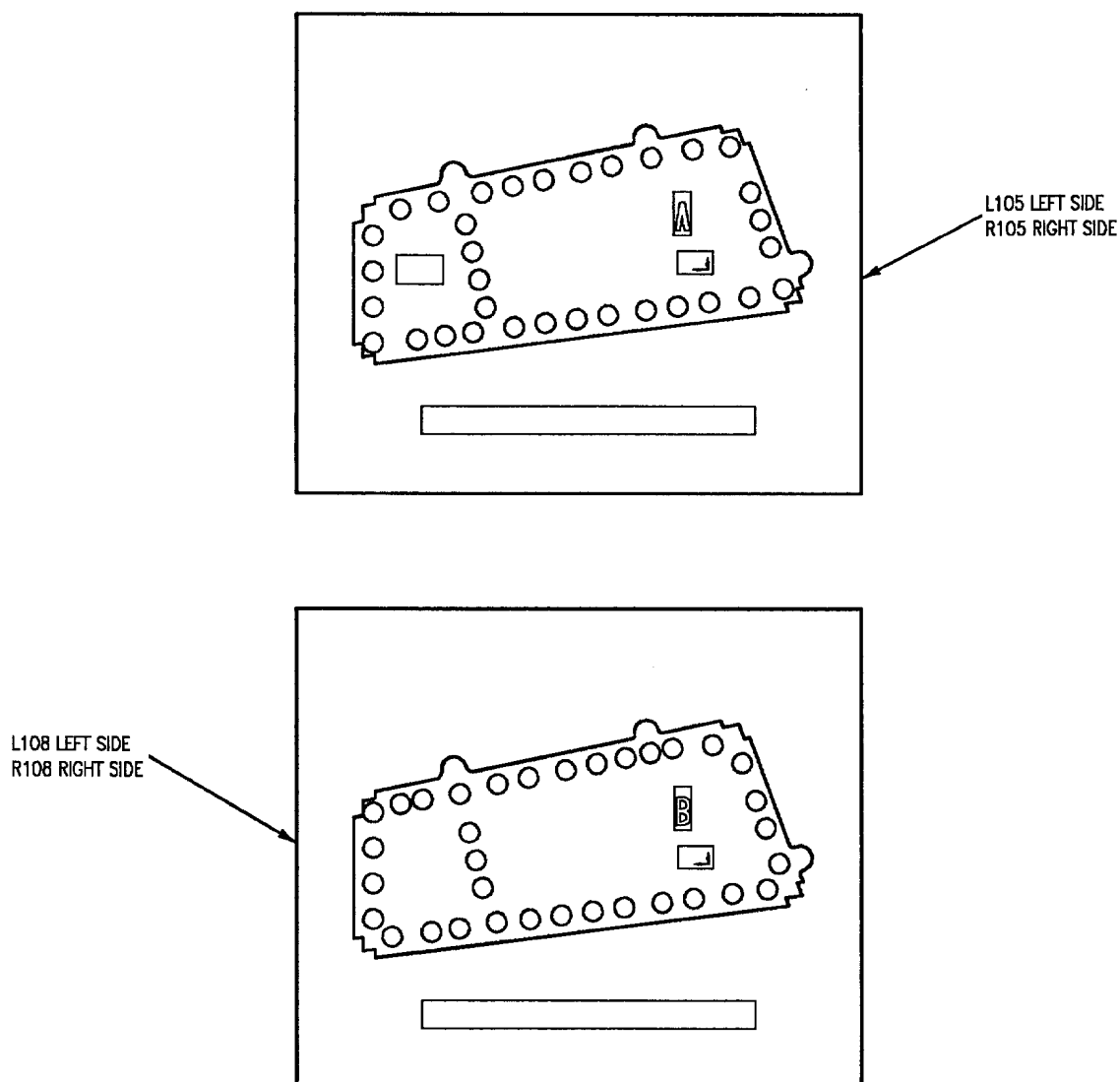


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
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	532	0.2500	126	121
	370	0.2500	126	121
	382	0.2500	126	121
	567	0.2500	126	121

OUTER INDEX HOLES IN SKIN OR STRUCTURE  
 NEXT TO DOOR AREA.

13020404

Figure 4. Installation of Plate Set for Drilling Door 84 (Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L105, R105	Hole Board	Sequence A reference board.
L108, R108	Hole Board	Sequence B reference board.

Figure 4. Installation of Plate Set for Drilling Door 84 (Sheet 5)

7. DRILLING HOLES IN DOOR 84 SUBSTRUC-  
TURE. See figure 5.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 84	RE174150820

Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove door (A1-F18AC-LMM-010).
- b. Remove and replace damaged substructure.
- c. Retract skin thickness adapters (detail 104) on bonded assembly to allow bonded assembly to contact door.
- d. Place door on work surface.
- e. Position sequence A bonded assembly (detail on door and align edges for equal spacing, view A.
- f. Install applicable RE374000002 step pins and bushings through bonded assembly holes and into holes in door, views A and C.

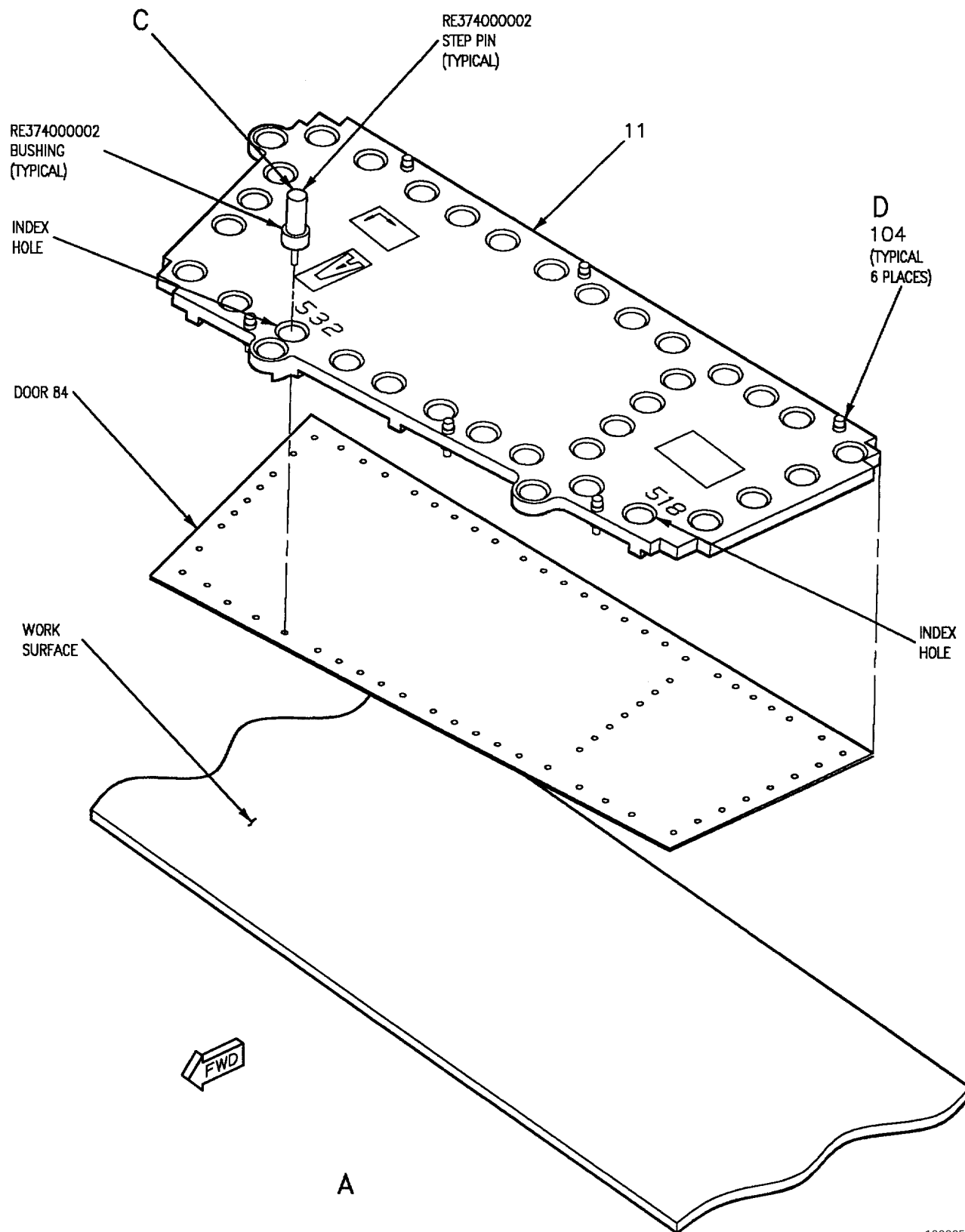


Solder, Wire, Cerrobend

11

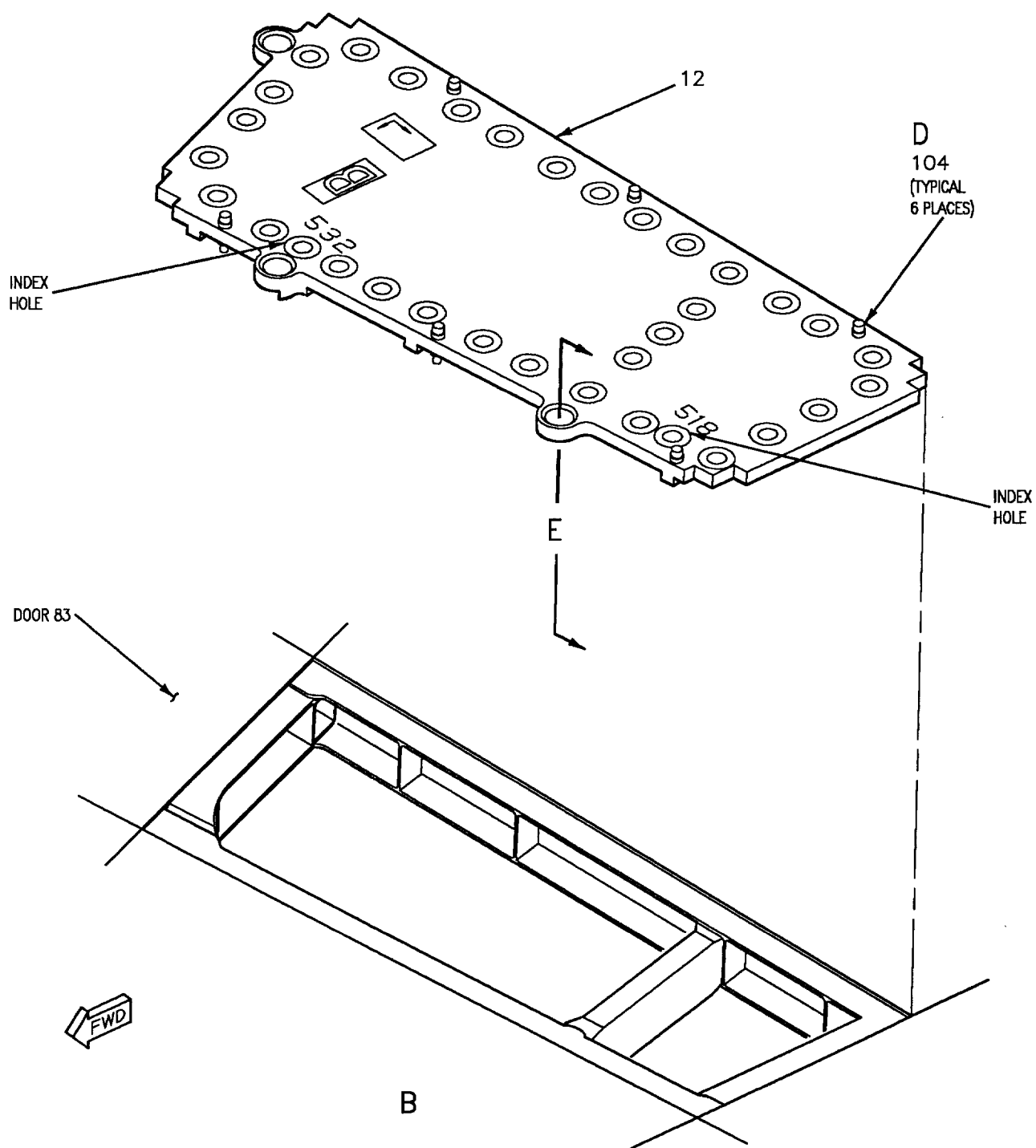
- g. Pot bushings in bonded assembly using melted cerrobend, with a minimum of 75 percent fill, per Hole Locating Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view C.

- h. Remove sequence A bonded assembly (detail 11).
- i. Repeat steps c through g for sequence B bonded assembly (detail 12).
- j. Remove sequence B bonded assembly (detail 12).
- k. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of door, views B and D.
- l. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view B.
- m. Secure bonded assembly in place using clamps, or bolt in place at outer tab index hole locations, view E.
- n. Drill and ream hole pattern in replacement structure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200).
- o. Remove sequence A bonded assembly (detail 11).
- p. Position sequence B bonded assembly (detail 12) on structure and pin in place at numbered index holes 518 and 532 using RE374000002 step pins per Table 1, views B and F.
- q. Repeat steps m and n for sequence B bonded assembly (detail 12).
- r. Remove sequence B bonded assembly (detail 12).
- s. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).
- t. Install door (A1-F18AC-LMM-010).



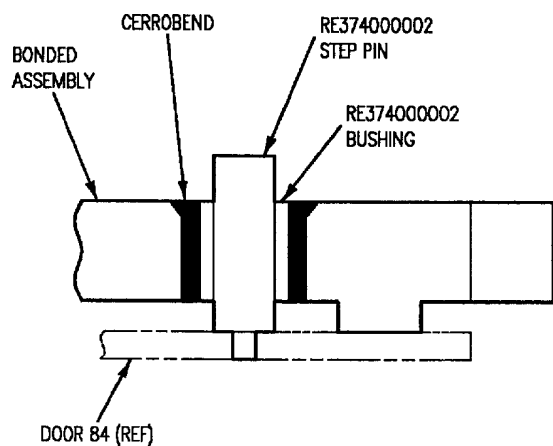
13020501

Figure 5. Installation of Plate Set for Drilling Door 84 Substructure (Sheet 1)

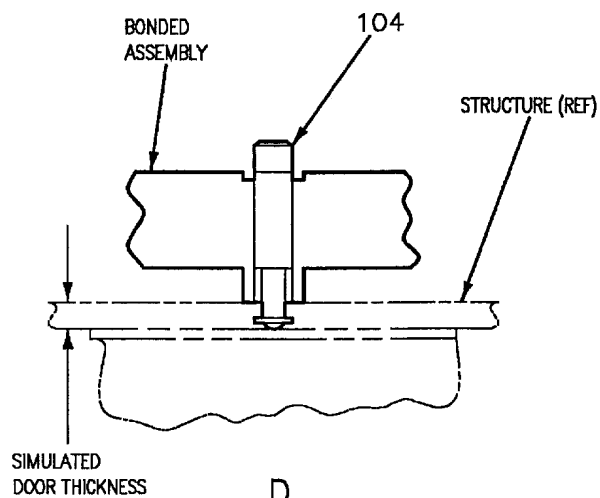


13020502

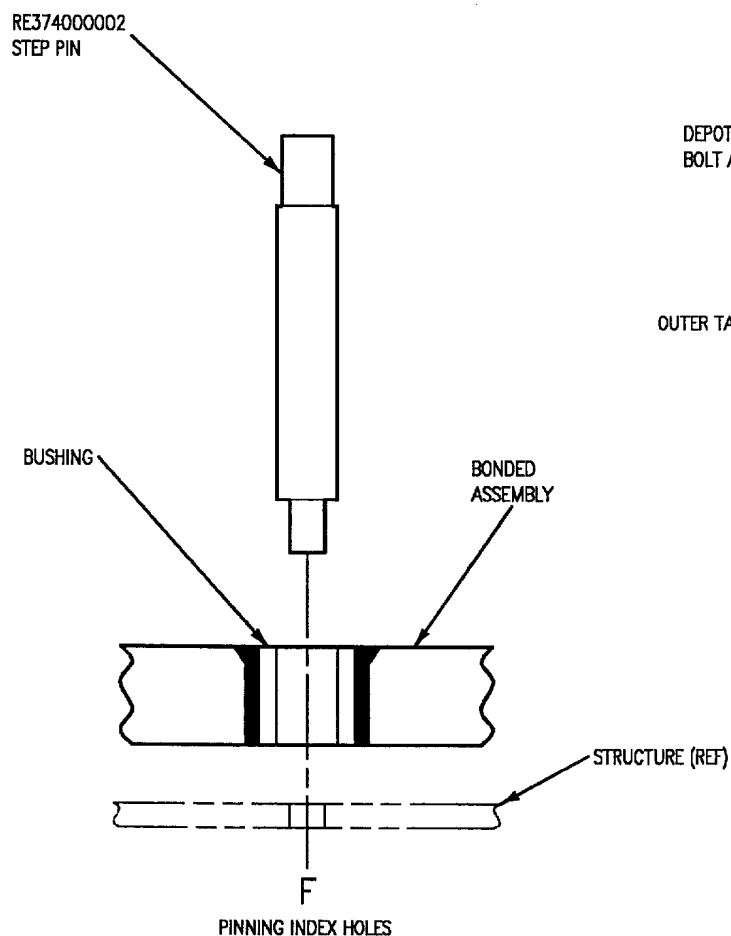
Figure 5. Installation of Plate Set for Drilling Door 84 Substructure (Sheet 2)



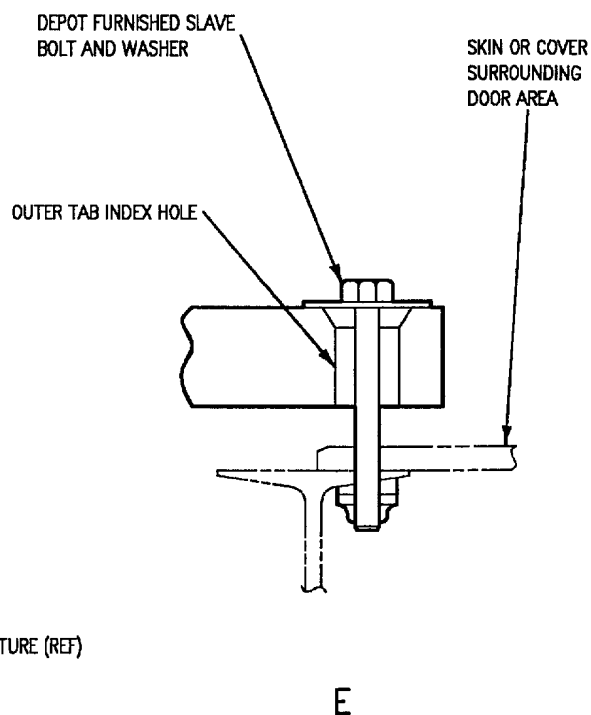
C



D



F



E

Figure 5. Installation of Plate Set for Drilling Door 84 Substructure (Sheet 3)

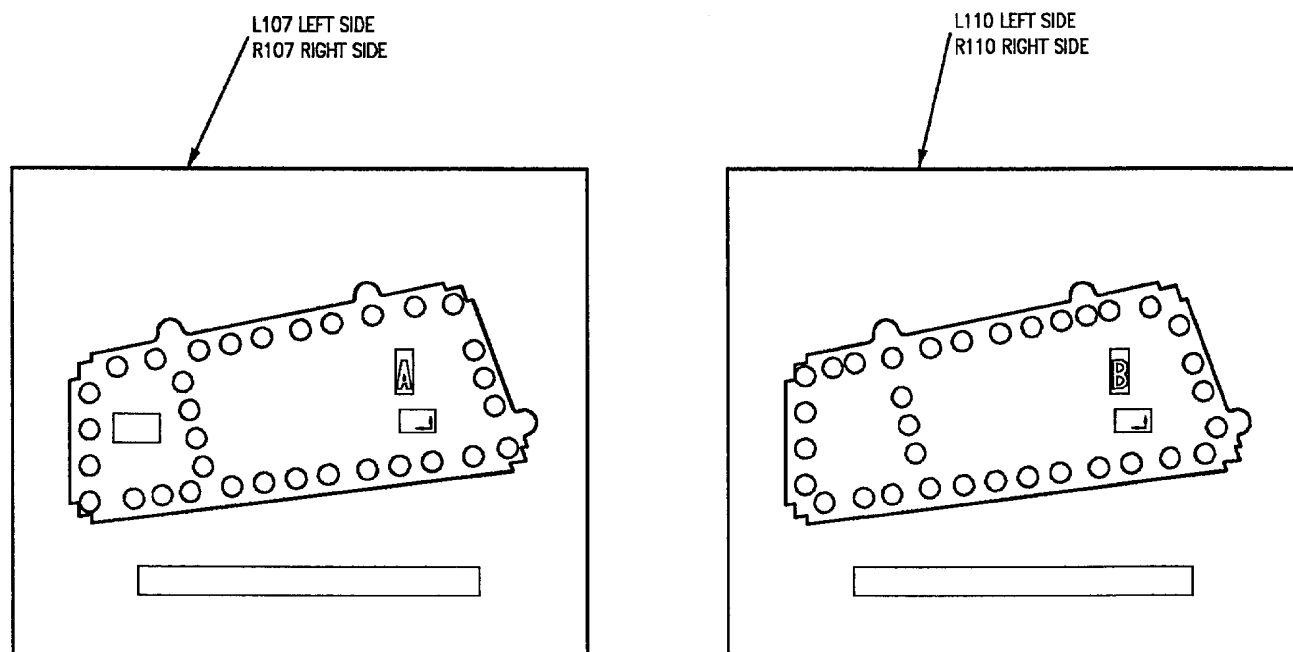


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px;">1</div> </div>	518	0.2500	126	121
	532	0.2500	126	121
	370	0.2500	126	121
	382	0.2500	126	121
	567	0.2500	126	121

OUTER INDEX HOLES SKIN OR STRUCTURE  
NEXT TO DOOR AREA.

13020504

Figure 5. Installation of Plate Set for Drilling Door 84 Substructure (Sheet 4)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure
L107, R107	Hole Board	Sequence A reference board.
L110, R110	Hole Board	Sequence B reference board.

Figure 5. Installation of Plate Set for Drilling Door 84 Substructure (Sheet 5)



## 8. DRILLING HOLES IN DOOR 84 AND SUB-STRUCTURE. See figure 6.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Accessory Kit-Plate Sets, Hole Locating	RE374000002
Plate Set, Hole Locating, Access Cover No. 84	RE174150820

### Materials Required

Nomenclature	Specification or Part Number
Solder, Wire	Cerrobend

- a. Remove damaged door (A1-F18AC-LMM-010).
- b. Remove and replace damaged substructure.
- c. Layout fastener pattern on substructure or use an undamaged door as a template to mark fastener pattern on substructure.
  - (1) If damaged door is used as a template, mark location of each fastener hole on structure through existing fastener holes of door.
  - (2) Inspect marked hole locations for correct edge distance.
- d. Pilot drill hole pattern in structure.
- e. Remove numbered fasteners 370, 382, and 567 from skin and door, view A mate tabs on bonded assembly.
- f. Tighten skin thickness adapters (detail 104) on bonded assembly to simulate thickness of door, views A and C.
- g. Position sequence A bonded assembly (detail 11) on structure and align edges for equal spacing, view A.
- h. Install applicable RE374000002 pilot sized step pins and bushings through bonded assembly holes and into holes in structure, views A and D.

- i. Install applicable RE374000002 step pins and bushings through outer tabs of bonded assembly and into fastener holes, views A and E.



Solder, Wire, Cerrobend

11

- j. Pot bushings in bonded assembly using melted cerrobend with a minimum of 75 percent fill, per Hole Location Plate Set Accessory Kit (A1-F18AC-SRM-200, WP004 16), view D.
- k. Remove sequence A bonded assembly (detail 11).
- l. Repeat steps f through j for sequence B bonded assembly (detail 12).
- m. Remove sequence B bonded assembly (detail 12).
- n. Trim replacement door (WP013 01).
- o. Position replacement door in place on structure, view B.
- p. Retract skin thickness adapters (detail 104) on bonded assemblies to allow bonded assembly to contact door.
- q. Position sequence A bonded assembly (detail 11) on door and pin at two outer tab index hole locations using RE374000002 step pins per Table 1, views B and E.
- r. Secure bonded assembly and door in place using clamps, and bolt in place at two remaining outer tab index hole locations, view F.
- s. Drill and ream hole pattern in replacement door and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-pins per Table 2 after drilling each hole to prevent door from shifting, view G.
- t. Remove sequence A bonded assembly (detail 11).
- u. Position sequence B bonded assembly (detail 12) on door and pin in place at

numbered index holes 518 and 532 using RE374000002 step pins per Table 1, view H.

v. Secure bonded assembly in place using clamps, and bolt in place at outer tab index hole locations, view F.

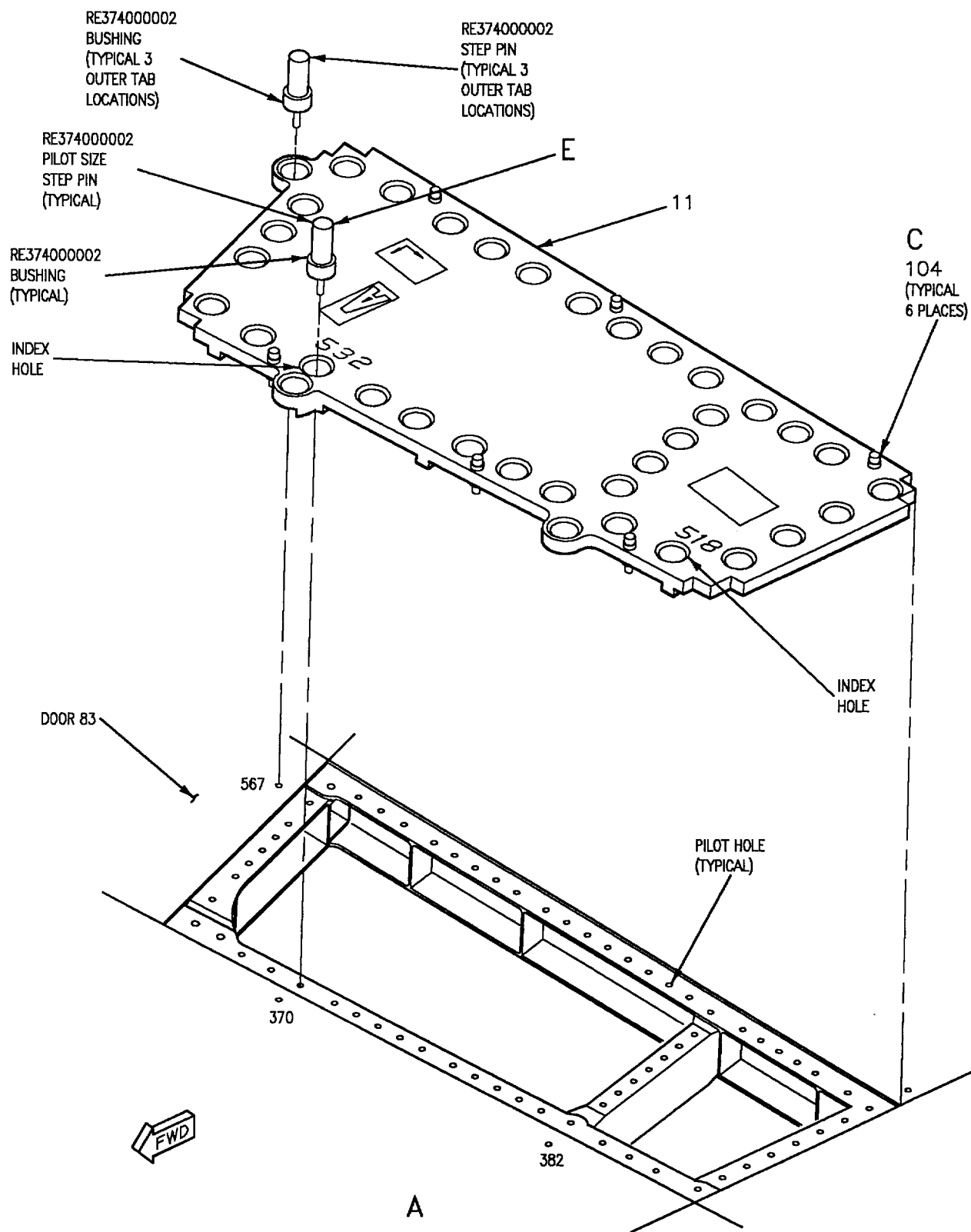
w. Drill and ream hole pattern in replacement door and substructure using applicable hole board and applicable repair number work package in Structure Repair, General Information (A1-F18AC-SRM-200). Install L-

pins per Table 2 after drilling each hole to prevent door from shifting, view G.

x. Remove sequence B bonded assembly (detail 12).

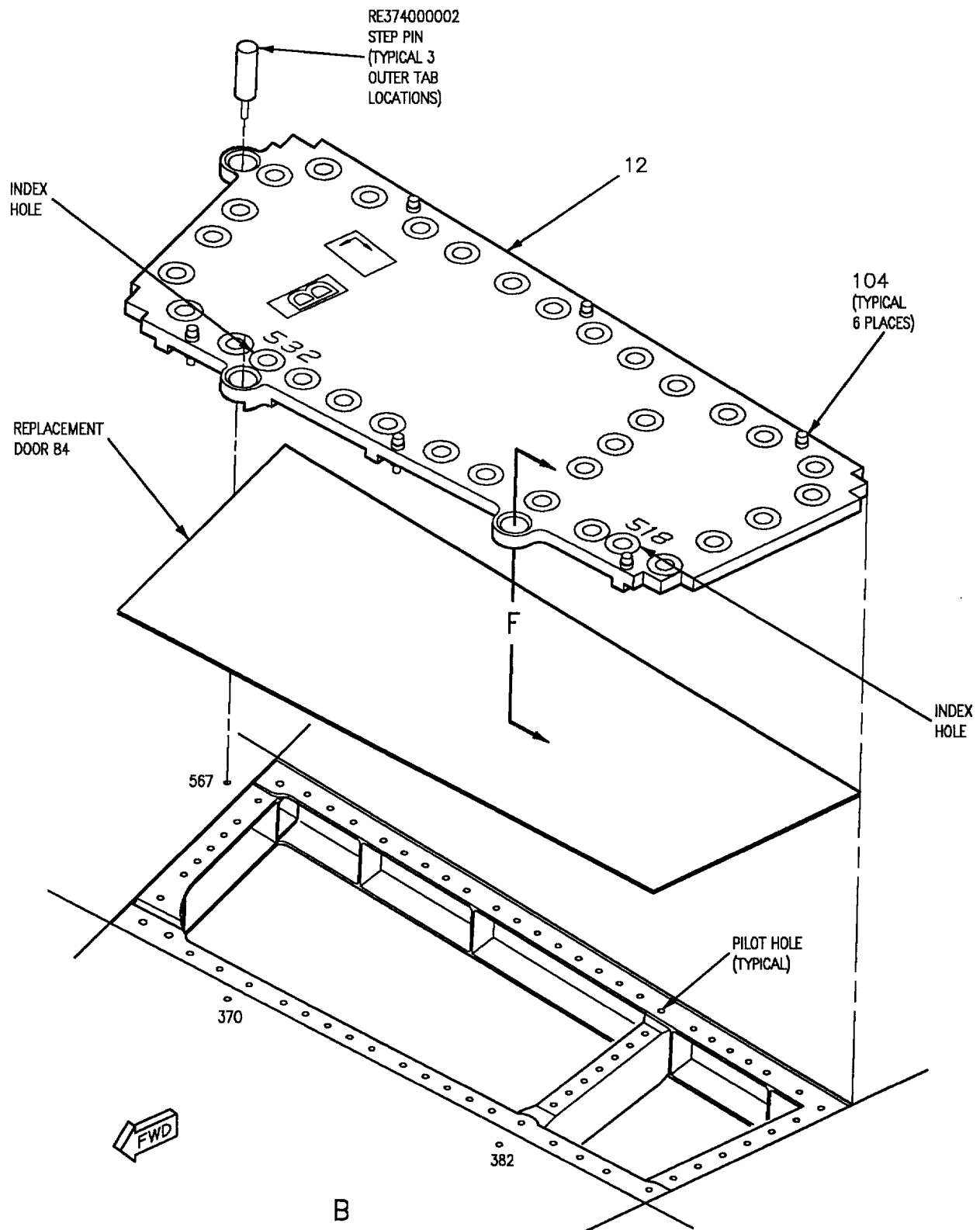
y. Install attaching hardware and form in place seal, and apply finish system per Replacements (WP013 01).

z. Install door (A1-F18AC-LMM-010).



13020601

Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 1)



13020602

Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 2)

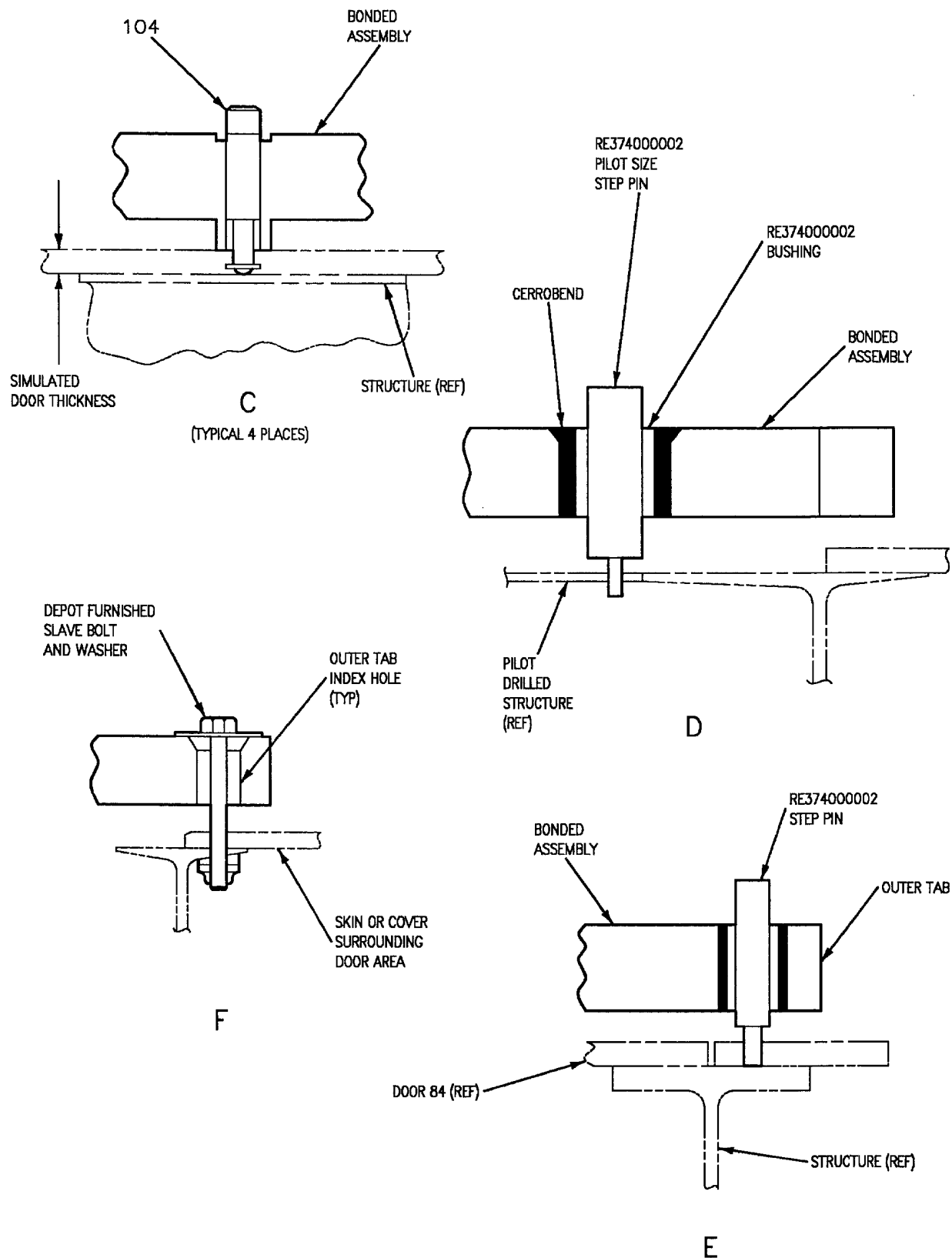


Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 3)



**Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 4)**

13020604

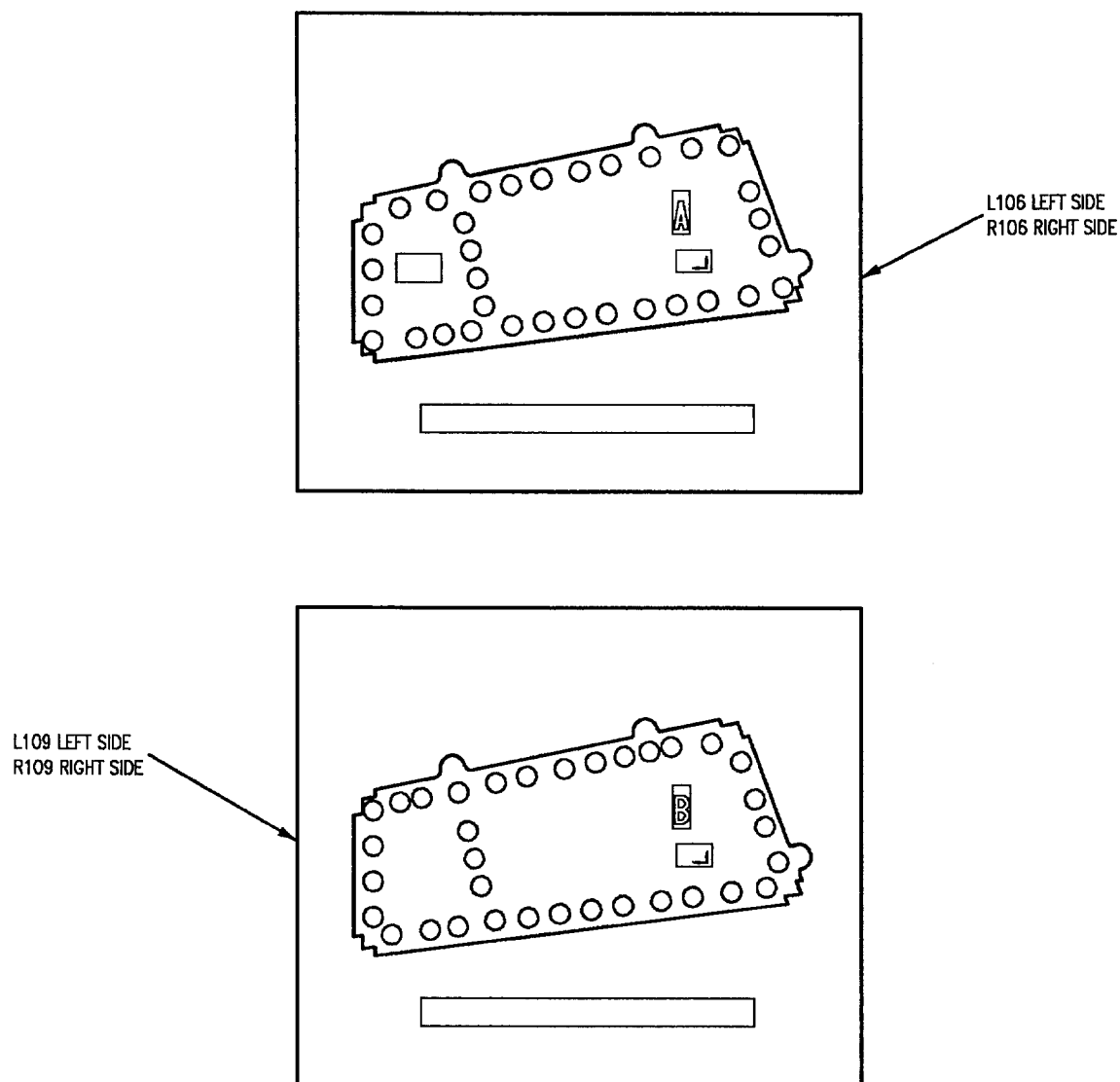


TABLE 1. DETAILS OF RE374000002 USED FOR INDEX HOLES				
NOTE	HOLE NO.	HOLE DIA.	STEP PIN DETAIL NO.	POTTED BUSHING
	518	0.2500	126	121
	532	0.2500	126	121
1	370	0.2500	126	121
1	382	0.2500	126	121
1	567	0.2500	126	121

1 OUTER INDEX HOLES IN SKIN OR STRUCTURE  
NEXT TO DOOR AREA.

13020605

Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 5)

Detail No.	Name	Function
11	Sequence A Bonded Assembly	Used to locate and drill hole pattern in door and structure.
12	Sequence B Bonded Assembly	Used to locate and drill hole pattern in door and structure.
104	Skin Thickness Adapter	Simulates thickness of door on structure.
L106, R106	Hole Board	Sequence A reference board for effectivity: 161353 AND UP
L109, R109	Hole Board	Sequence B reference board for effectivity: 161353 AND UP

Figure 6. Installation of Plate Set for Drilling Door 84 and Substructure (Sheet 6)



## ORGANIZATIONAL AND DEPOT MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING EXTERNAL DOORS, LOWER

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Form In Place Sealing .....	WP010 00
Inner and Outer Wing Finish System and Markings .....	WP027 00
Structure Illustrated Parts Breakdown - Wing .....	A1-F18AC-SRM-410
Flap, Wing Leading Edge - Outbd, Inst of .....	FIG 007 05
Structure Assembly - Wing, Outer .....	FIG 008 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Gang Channel Identification and Repair .....	WP004 05
Locating Blind Holes and Trim Lines .....	WP004 03
Fasteners .....	WP004 06
Oversize Fasteners .....	WP004 07
Cold Working Fastener Holes .....	WP004 10
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum Sheet Edge Repair .....	WP034 00
Titanium Sheet Edge Repair .....	WP035 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509

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## Record of Applicable Technical Directives

None

## Support Equipment Required

None

## Materials Required

None

**4. REPAIRABLE DAMAGE.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

## NOTE

The limits in table 2 apply after blending the damage.

## a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

## c. Cracks. All cracks must be repaired.

## d. Holes.

(1) Damage in areas free of structure and lands must have edge cleanup hole at least eight repair fasteners diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, over structure. Only one repair per land.

e. Dents exceeding limits in table 1 must be repaired.

**1. DAMAGE EVALUATION.** See figures 1 and 2.

2. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 2. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Repairs to aluminum sheet across structure or land areas 0.063 inch or thicker in zone B2 is depot maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

**3. NEGLIGIBLE DAMAGE.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

## 5. REPAIRS.

6. Types of repairs are temporary, one time flight, permanent, critical area, alternate, and typical. Repair type definitions are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

### WARNING

Installation of an overweight repair could cause failure of door resulting in loss of life or injury. Engineering approval of repairs on door is required.

## 7. PERMANENT REPAIRS.

8. **Scratches, Nicks, Gouges, or Corrosion.** Blend nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If after blending, the damage limits of table 2 are exceeded, repair aluminum or titanium. Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

a. Scratches - make crack or edge repair.

b. Nicks, gouges, or corrosion - make hole or edge repair.

## 9. Cracks.

a. In repair zones A3 and B2, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Rout out crack in repair zone A3. Cut out crack in smallest diameter circle in repair zone B2.

(2) In zone A3, install a lap patch for cracks.

(3) In zone B2, install a type two flush or lap patch.

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair cracks free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM -500, WP027 00).

c. In repair zones A3, A4, and B2, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

### NOTE

When making a repair in repair zone B2, to 0.063 inch or thicker material, all fasteners holes shall either be cold worked (A1-F18AC-SRM-200, WP004 10) or drilled to an interference fit (A1-F18AC-SRM-200, WP004 06 for standard fasteners or WP004 07 for oversize fastener). Cold working or drilling interference fit holes is depot maintenance.

(2) In repair zones A3, A4, or B2, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 10. Holes.

a. In repair zones A3 and B2, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A3, install a type one flush or lap patch. In repair zone B2, install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair holes free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A3, A4, and B2, repair holes across structure and land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

## NOTE

When making a repair in repair zone B2, to 0.063 inch or thicker material, all fasteners holes shall either be cold worked (A1-F18AC-SRM-200, WP004 10) or drilled to an interference fit (A1-F18AC-SRM-200, WP004 06 for standard fasteners or WP004 07 for oversize fastener). Cold working or drilling interference fit holes is depot maintenance.

(2) In repair zones A3, A4, and B2, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

## 11. Dents.

a. In repair zones A3 and B2, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zone A3, install a type one flush or lap patch. In repair zone B2, install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zone B3, repair dents free of structure or land areas in aluminum sheet (0.050 inch thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A3, A4, and B2, repair dents across structure and land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

## NOTE

When making a repair in repair zone B2, to 0.063 inch or thicker material, all fastener holes shall either be cold worked (A1-F18AC-SRM-200, WP004 10) or drilled to an interference fit (A1-F18AC-SRM-200, WP004 06 for standard fasteners or WP004 07 for oversize fasteners). Cold working or drilling interference fit holes is depot maintenance.

(2) In repair zones A3, A4, or B2, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

12. **Edge.** In repair zones A3 and A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00) or in titanium sheet (A1-F18AC-SRM-250, WP035 00).

a. Cut out damage.

b. Select applicable repair patch (A1-F18AC-SRM-250, WP034 00 or WP035 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repair area (A1-F18AC-SRM-500, WP027 00).

**Table 1. Negligible Damage Limits**






















Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (1)	Seal	0.090	0.002	0.002	100%		
	Zone A3 Zone B3	0.030	0.0006	0.0006	100%	0.015	
Fig 1 (2)	Seal	0.100	0.0006	0.0006	100%		
	Zone A4 Zone B4	0.040	0.0006	0.0006	100%	0.020	
Fig 1 (3)	Seal	0.090	0.002	0.002	100%		
	Zone A3 Zone B3	0.030	0.0006	0.0006	100%	0.015	
Fig 1 (4)	Seal	0.040	0.002	0.002	100%	0.020	
	Zone A3 Zone B3	0.090	0.0006	0.0006	100%		
Fig 1 (5)	Seal	0.090	0.0006	0.0006	100%		
	Zone B3 Zone A3	0.040	0.002	0.0006	100%	0.020	
Fig 1 (6 and 7)	Seal	0.090	0.0006	0.0006	100%		
	Zone A4 Zone D4	0.018	0.0006	0.0006	100%	0.009	
Fig 1 (8)	Seal	0.090	0.0006	0.0006	100%		
	Zone B2 Zone B2	0.060	0.0006	0.0006	100%	0.030	

Table 1. Negligible Damage Limits (Continued)


































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (9)	Fairing	0.125	0.0006	0.0006	100%		
	Zone B3 Zone B3	0.053	0.0006	0.0006	100%	0.026	
Fig 1 (12)	Stiffener Zone B3	0.060	0.0006	0.0006	100%		
Fig 1 (14)	Stiffener Zone B3	0.080	0.0006	0.0006	100%		
Fig 1 (16)	Seal	0.040	0.002	0.002	100%	0.020	
	Zone A3	0.060	0.002	0.002	100%	0.030	
	Zone B3	0.100	0.0006	0.0006	100%		
NOTE							
 None allowed.							


Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Corrosion		Dents Depth
				Depth	Area	Depth Area	Area	
Fig 1 (1)	Seal	0.090	0.018	0.018	90%	0.018	90%	
	Zone A3 Zone B3	0.030	0.006	0.006	100%	0.006	100%	
Fig 1 (2)	Seal	0.100	0.020	0.020	90%	0.020	90%	
	Zone A4 Zone B4	0.040	0.003	0.003	50%	0.003	50%	
Fig 1 (3)	Seal	0.090	0.018	0.018	90%	0.018	90%	
	Zone A3 Zone B3	0.030	0.005	0.005	100%	0.005	100%	

**Table 2. Repairable Damage Limits After Blending (Continued)**

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Corrosion		Dents Depth
				Depth	Area	Depth Area	Area	
Fig 1 (4)	Seal Zone A3 Zone B3	0.040 0.090	0.008 0.018	0.008 0.018	100% 100%	0.008 0.018	100% 100%	 
Fig 1 (5)	Seal Zone B3 Zone A3	0.090 0.040	0.018 0.012	0.018 0.012	100% 100%	0.018 0.012	100% 100%	 
Fig 1 (6 and 7)	Seal Zone A3 Zone D4	0.090 0.018	0.018 0.0006	0.018 0.0006	80% 100%	0.018 0.0006	80% 80%	 
Fig 1 (8)	Seal Zone B2 Zone B2	0.090 0.060	0.018 0.010	0.018 0.010	100% 100%	0.018 0.010	100% 100%	 
Fig 1 (9)	Fairing Zone B3 Zone B3	0.125 0.053	0.020 0.010	0.020 0.010	100% 100%	0.020 0.010	100% 100%	 
Fig 1 (12)	Stiffener Zone B3	0.060	0.006	0.006	50%	0.006	50%	
Fig 1 (14)	Stiffener Zone B3	0.080	0.008	0.008	50%	0.008	50%	
Fig 1 (16)	Seal Zone A3 Zone A3 Zone B3	0.040 0.060 0.100	0.008 0.012 0.020	0.008 0.012 0.020	100% 100% 100%	0.008 0.012 0.020	100% 100% 100%	  

**NOTE**

 None allowed.

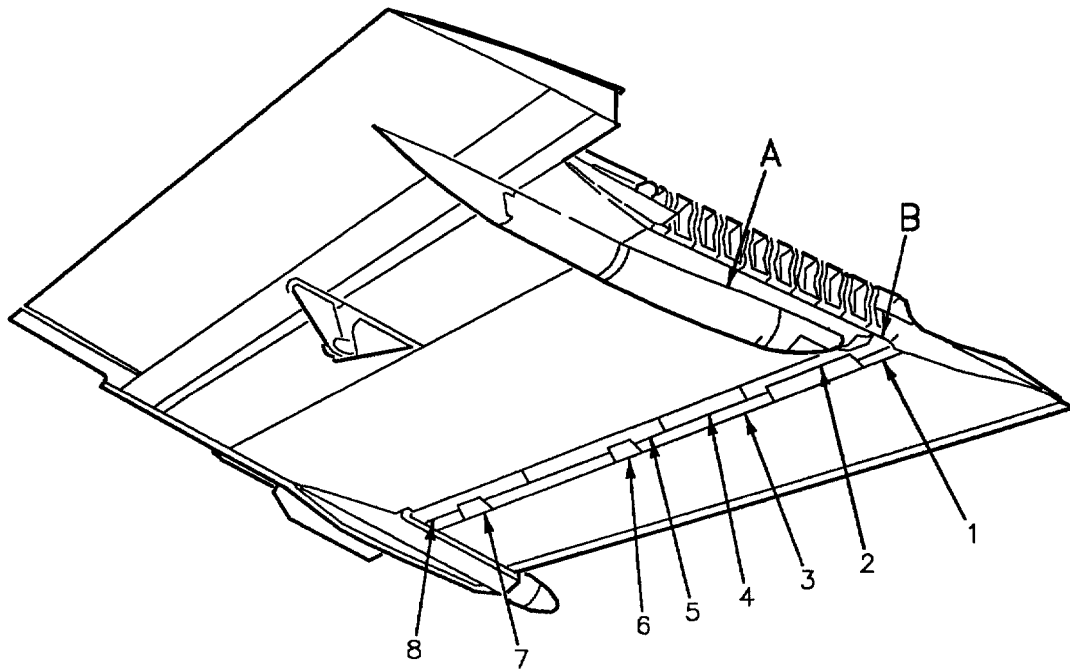
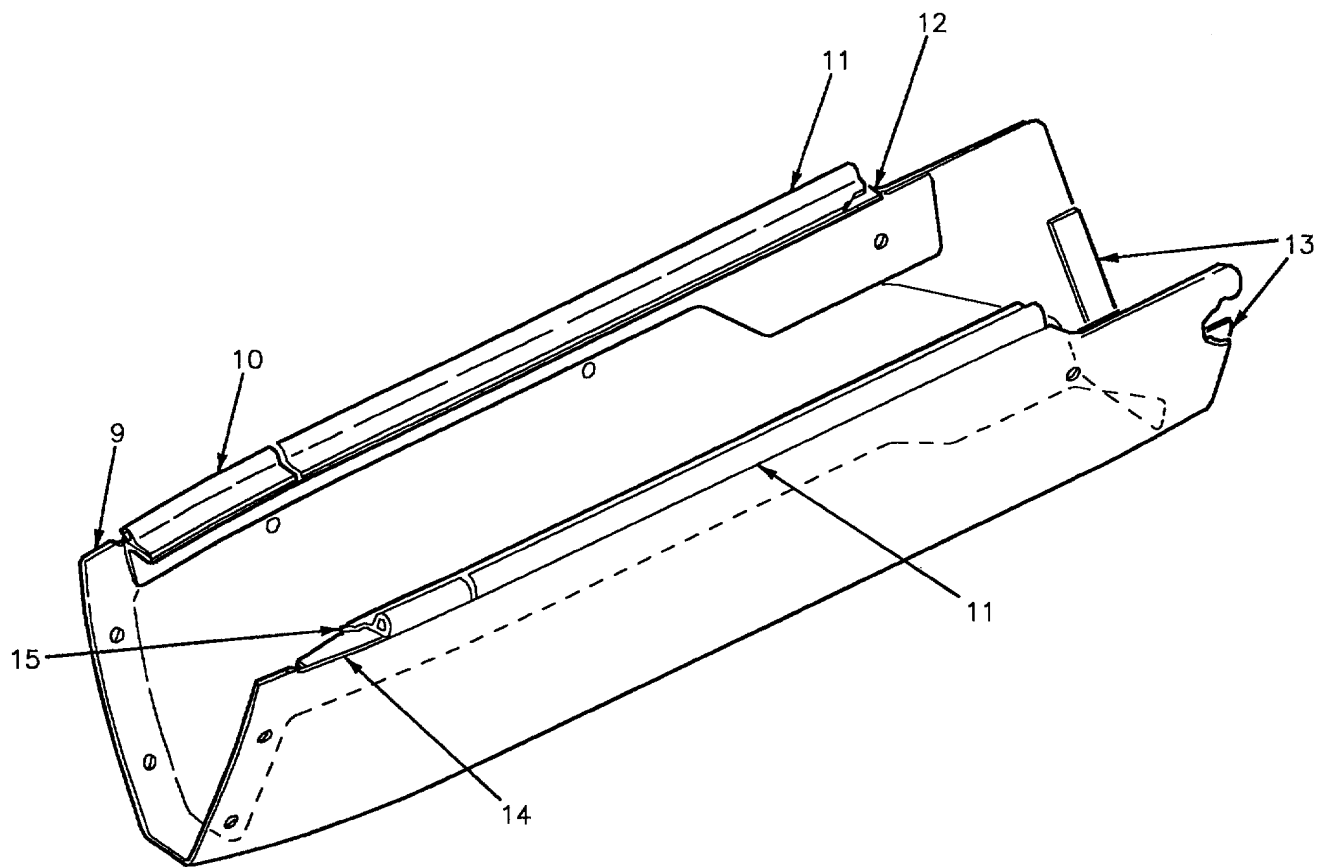
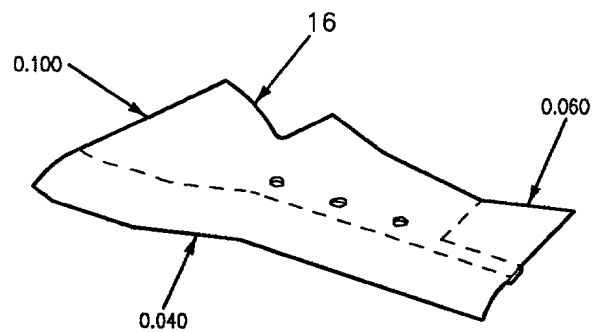


Figure 1. Material Index (Sheet 1)





A



B

Figure 1. Material Index (Sheet 2)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1	<div>8</div> <div>9</div> <div>11</div>	Seal (Door 152) 74A190824-2013, -2014 74A190824-2025, -2026 74A190824-2033, -2034	<div>1</div> Sheet	7075-T76 Alclad
2	<div>14</div> <div>15</div> <div>11</div>	Seal (Door 182) 74A150773-2003, -2004 74A150848-2001, -2002 74A150848-2005, -2006	<div>2</div> Sheet	7075-T76 Alclad
3	<div>8</div> <div>9</div> <div>11</div>	Seal (Door 153) 74A190824-2019, -2020 74A190824-2027, -2028 74A190824-2035, -2036	<div>3</div> Sheet	7075-T76 Alclad
4	<div>10</div> <div>11</div>	Seal (Door 183) 74A150648-2013, -2014 74A150648-2019, -2020	<div>4</div> Sheet	7075-T76511 Alclad
5	<div>10</div> <div>11</div>	Seal (Door 184) 74A150648-2009, -2010 74A150648-2017, -2018	<div>4</div> Sheet	7075-T76511 Alclad
6	<div>10</div> <div>11</div>	Seal (Door 154) 74A190833-2003, -2004 74A190833-2005, -2006	<div>5</div> Sheet	6Al-4V Ti Anl
7	<div>10</div> <div>11</div>	Seal (Door 156) 74A190833-2003, -2004 74A190833-2005, -2006	<div>5</div> Sheet	6Al-6V Ti Anl
8	<div>10</div> <div>12</div> <div>13</div>	Seal (Door 185) 74A150648-2015, -2016 74A150648-2021, -2022 74A150648-2023, -2024	<div>6</div> Sheet	7075-T76 Alclad
9		Fairing (Door 159) 74A150724-2029, -2030	<div>7</div> Sheet	7075-T76 Alclad
10		Seal 74A150724-2009	11M970 Extr	Silicone Rubber
11		Seal 74A150724-2007	11M970 Extr	Silicone Rubber
12		Stiffener 74A150724-2027, -2028	1MA100D01 Extr	7075-T76 Al Aly
13		Pad 74A150724-2031, -2032	0.125 Sheet	Silicone Rubber

Figure 1. Material Index (Sheet 3)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
14		Stiffener 74A150724-2025, -2026	1MA100D01 Extr	7075-T76 Al Aly
15		Seal 74A150724-2021, -2022	11M970 Extr	Silicone Rubber
16		Seal (Door 181) 74A150775-2001, -2002	0.100 Sheet	7075-T76 Alclad
<p style="text-align: center;"><b>LEGEND</b></p> <p>1 Leading edge is 0.090, trailing edge is 0.030.</p> <p>2 Land is 0.100, bay is 0.040.</p> <p>3 Leading edge is 0.090, trailing edge is 0.030.</p> <p>4 Land is 0.090, bay is 0.040.</p> <p>5 Leading edge is 0.090, trailing edge is 0.018.</p> <p>6 Land is 0.090, bay is 0.060.</p> <p>7 Land is 0.125, bay is 0.053.</p> <p>8 161353 THRU 161519.</p> <p>9 161520 THRU 162414.</p> <p>10 161353 THRU 162414.</p> <p>11 162415 AND UP.</p> <p>12 161415 THRU 162909.</p> <p>13 163092 AND UP.</p> <p>14 161353 THRU 161363.</p> <p>15 161364 THRU 162414.</p>				

Figure 1. Material Index (Sheet 4)

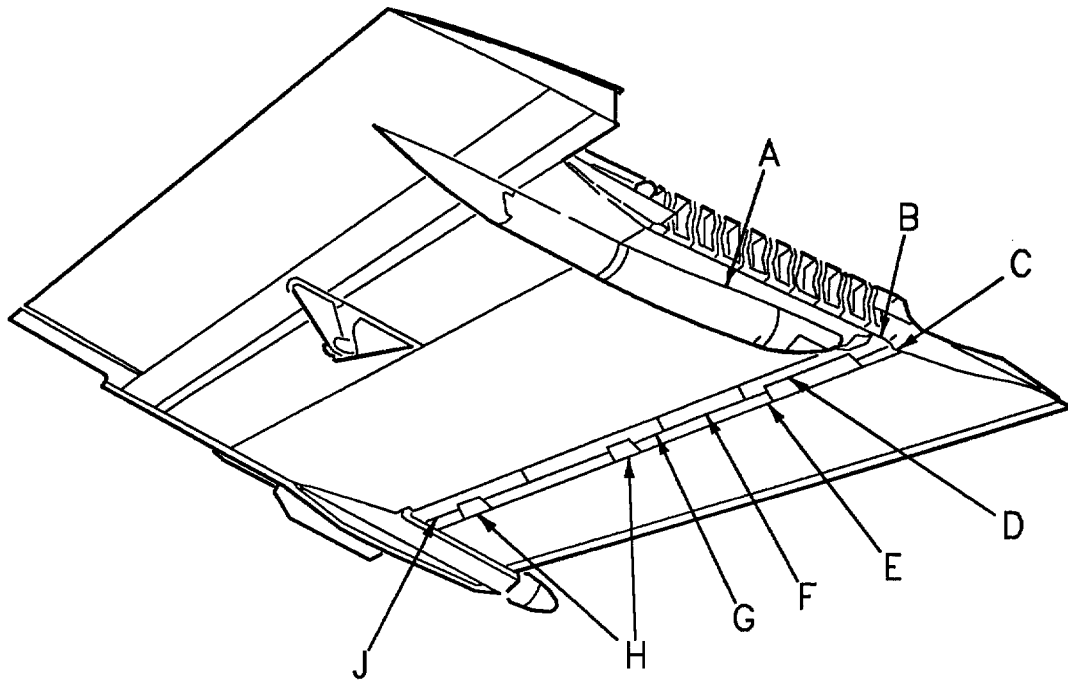


Figure 2. Repair Zones (Sheet 1)

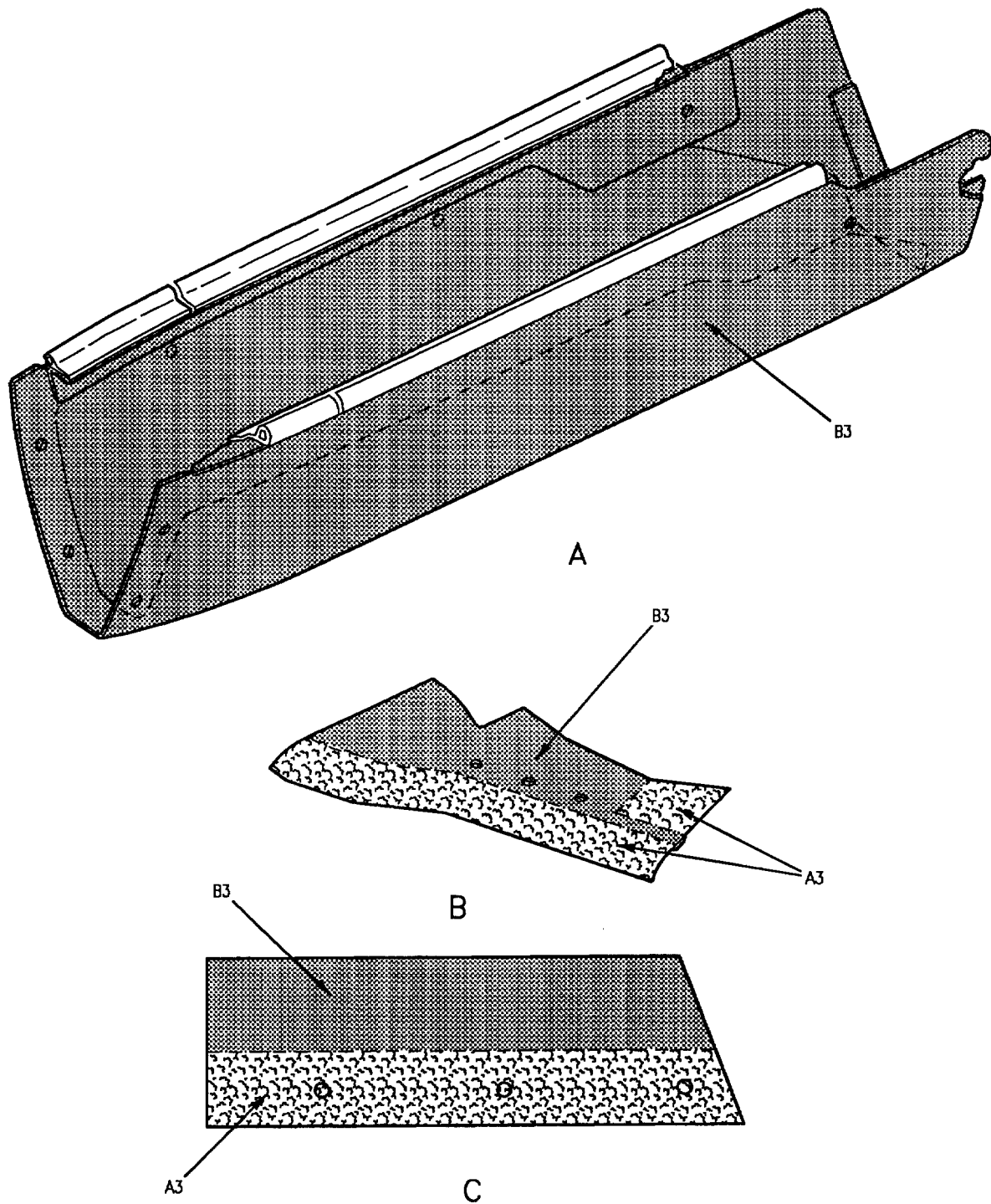


Figure 2. Repair Zones (Sheet 2)

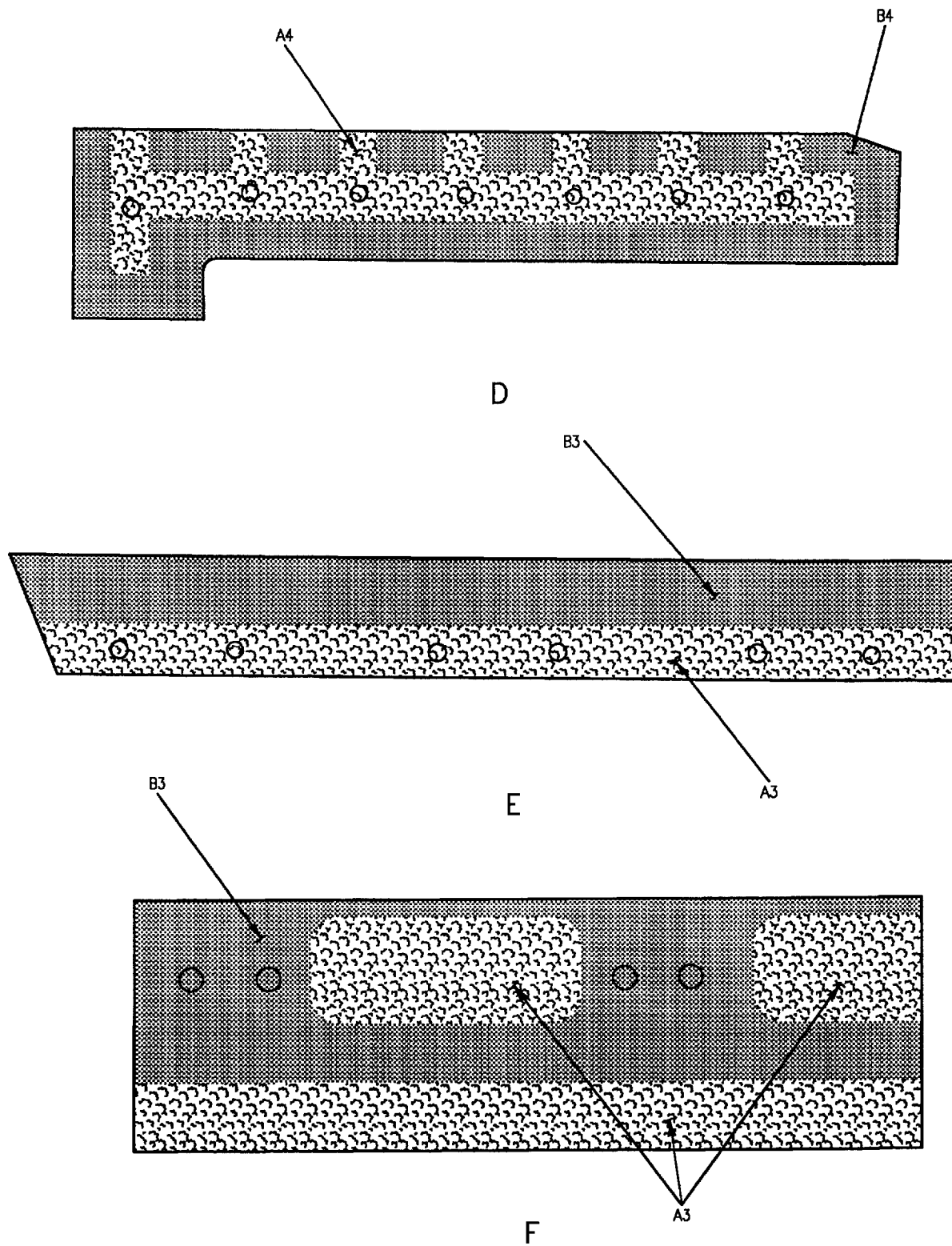
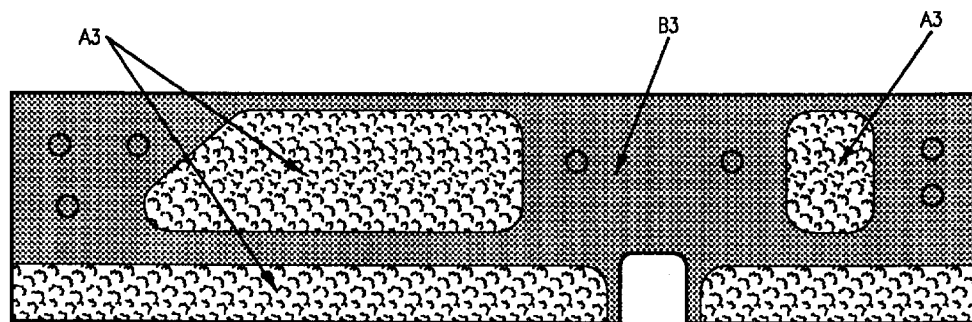
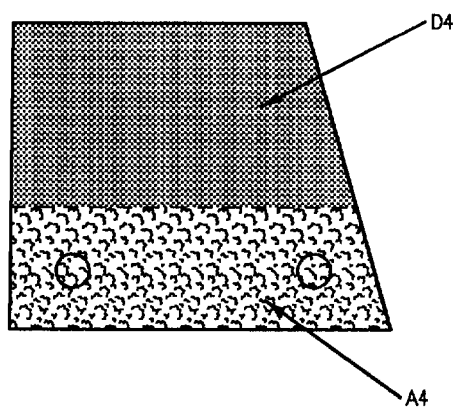


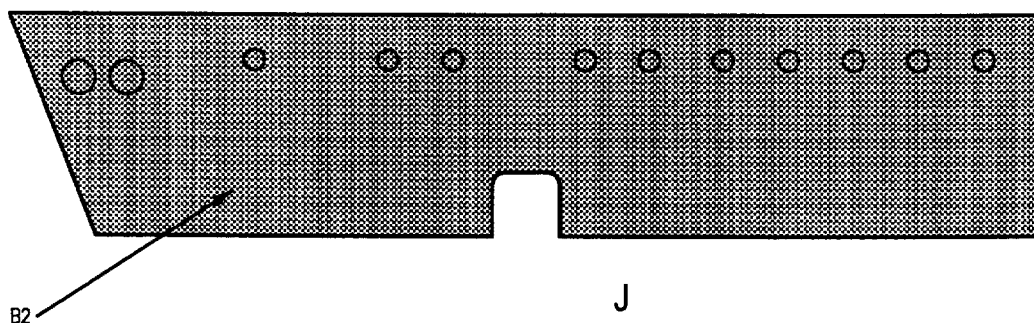
Figure 2. Repair Zones (Sheet 3)



G



H



J

Figure 2. Repair Zones (Sheet 4)

### 13. REPLACEMENTS.

14. **FAIRING (DOOR 159).** Fairing is interchangeable. For replacement rivets attaching plate nuts (A1-F18AC-SRM-200, WP004 05). Fastener attaching hardware is shown on figure 4. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

15. **SEAL (DOOR 152).** Seal is replaceable and requires trimming and drilling. For seal gap and mismatch see figure 6. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement rivets attaching plate nuts (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 4. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

16. **SEAL (DOOR 153).** Seal is replaceable and requires trimming and drilling. For seal gap and mismatch see figure 6. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement rivets attaching gang channel (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

17. **SEAL (DOOR 154).** Seal is replaceable and requires trimming and drilling. For seal gap and mismatch see figure 6. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement rivets attaching plate nuts (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 3. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

18. **SEAL (DOOR 156).** Seal is replaceable and requires trimming and drilling. For seal gap and mismatch see figure 6. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For form in place sealing (A1-F18AC-SRM-500, WP010 00). For replacement rivets attaching plate nuts (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching

hardware is shown on figure 3. For fasteners (A1-F18AC-SRM-410, FIG 007 05).

19. **SEAL (DOOR 181).** Seal is replaceable and requires trimming and drilling. Method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For fillet sealing (A1-F18AC-SRM-200, WP011 00). For replacement rivets attaching gang channel (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 5. For fasteners (A1-F18AC-SRM-410, FIG 008 00). Install retainer (1) and seal (2) on new seal.

a. Align retainer (1) and seal (2) to seal and mate drill.

b. Install rivets (3) to seal, retainer (1) and seal (2).

20. **SEAL (DOOR 182).** Seal is replaceable and requires trimming and drilling. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For fillet sealing (A1-F18AC-SRM-200, WP011 00). For replacement rivets attaching plate nuts (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 5. For fastener (A1-F18AC-SRM-410, FIG 008 00).

21. **SEAL (DOOR 183).** Seal is replaceable and requires trimming and drilling. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For fillet sealing (A1-F18AC-SRM-200, WP011 00). For repair of gang channel, replacement rivets, attaching gang channel, and bonding with MIL-S-8802 sealing compound (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is shown on figure 4. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

22. **SEAL (DOOR 184).** Seal is replaceable and requires trimming and drilling. For method of locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For fillet sealing (A1-F18AC-SRM-200, WP011 00). For replacement rivets attaching plate nuts and gang channels (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener attaching hardware is



shown on figure 3. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

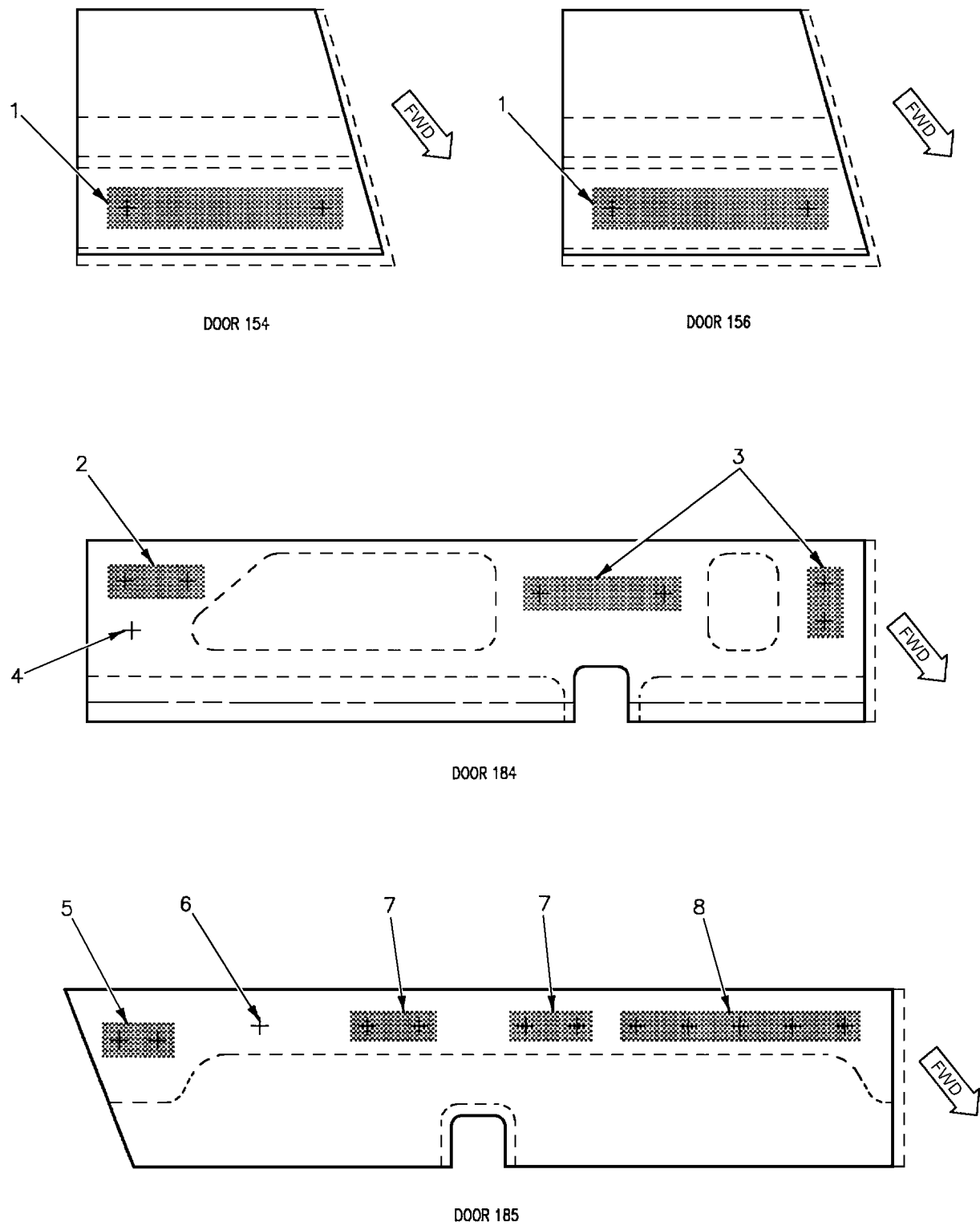
23. **SEAL (DOOR 185).** Seal is replaceable and requires trimming and drilling. For locating blind holes and trim lines (A1-F18AC-SRM-200, WP004 03). For fillet sealing (A1-F18AC-SRM-200, WP011 00). For replacement rivets attaching plate nuts and gang channels (A1-F18AC-SRM-200, WP004 05). Refinish trim areas (A1-F18AC-SRM-500, WP027 00). Fastener at-

taching hardware is shown on figure 3. For fasteners (A1-F18AC-SRM-410, FIG 008 00).

24. **REWORK OF SEALS (DOORS 152, 153, 154, AND 156).** See figure 6.

a. Trim seal to allowable gap, views A and B.

b. Refinish trimmed edge ((A1-F18AC-SRM-500, WP027 00).



01400301

Figure 3. Seals (Doors 154, 156, 184, and 185) Replacement (Sheet 1)













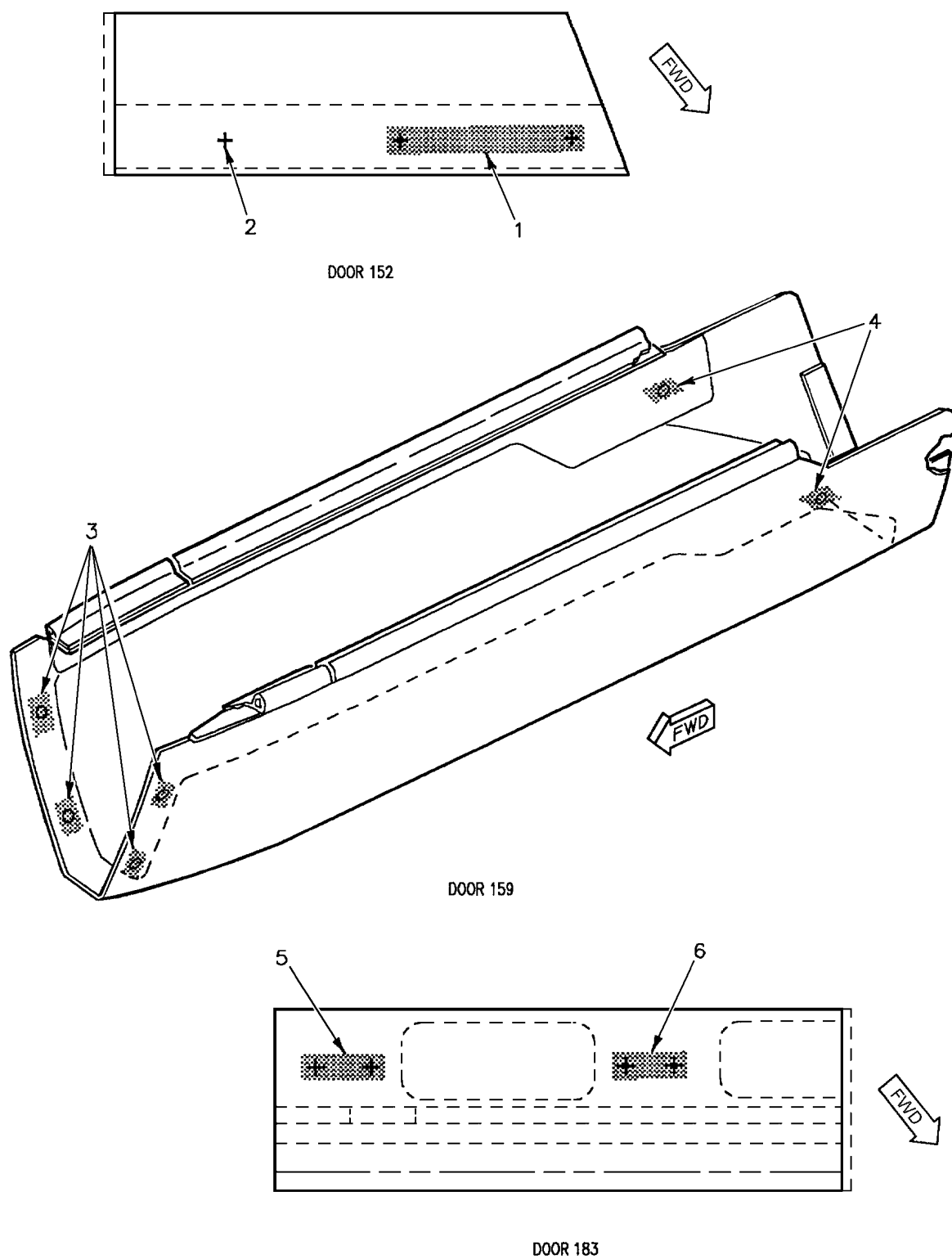
Idx No.	Eft		Nomenclature	Part Number
1			Plate Nut	F50339-4-2
2			Gang Channel	G18421JL2-4-8
3			Plate Nut	F49249E4-2
4			Plate Nut	F49251E4-1
5			Nut Washer	H49817-5 NAS1252-516L
6			 Plate Nut	F49249E4-1
7			Gang Channel Shim	G51061-4-2-8 74A150755-2031
8			Gang Channel Shim	G1842JL2-4-8 74A150755-2375
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.255 +0.007 -0.000.</p> <p> Hole diameter is 0.322 +0.007 -0.000.</p> <p> Attached with RV 1241-3 rivets, length determined on installation.</p>				

Figure 3. Seals (Doors 154, 156, 184, and 185) Replacement (Sheet 2)



01400401

Figure 4. Fairing (Door 159), Seals (Doors 152 and 183) Replacement (Sheet 1)













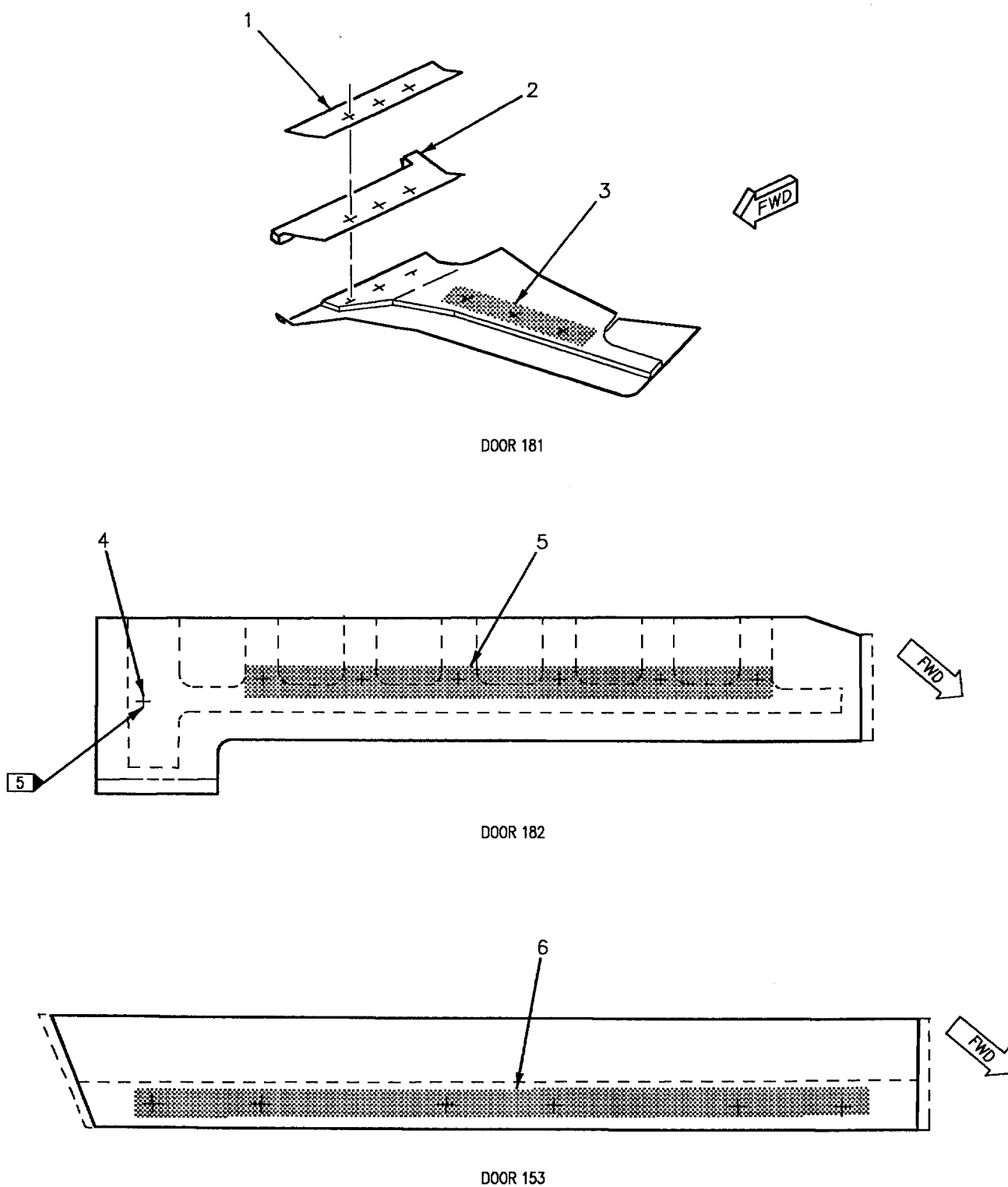
Idx No.	Eft		Nomenclature	Part Number
1			Plate Nut	F50339-4-2
2			Plate Nut	F50340-4-2
3			Plate Nut	F14427-4-4
4			Plate Nut	F51827-4-25
5			 Gang Channel	G18421JL2-4-8
6			Gang Channel	 74B110051-2011
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.255 +0.007 -0.000.</p> <p> Hole diameter is 0.250 +0.006 -0.000.</p> <p> Modified from G18421JL2-4-8.</p> <p> Attached by bonding with MIL-S-8802 and riveting.</p>				

Figure 4. Fairing (Door 159), Seals (Doors 152 and 183) Replacement (Sheet 2)



01400501

Figure 5. Seals (Doors 153, 181, and 182) Replacement (Sheet 1)
















Idx No.	Eft		Nomenclature	Part Number
1			Retainer	74A150775-2005, -2006
2			Seal	74A150775-2003, -2004
3			Gang Channel	G18421JL2-4-9
4			Plate Nut	 74A150787-2005
5	 		 Plate Nut Insert	F50340-4-4 MS51830A202L
6			Gang Channel	G18421JL-2-4-16
<p style="text-align: center;"><b>LEGEND</b></p> <p> Hole diameter is 0.255 +0.007 -0.000.</p> <p> Hole diameter is 0.128 +0.006 -0.000.</p> <p> Modified from G18421JL2-4-10.</p> <p> Attached with RV1241-3 rivets, length determined on installation.</p> <p> 161353 THRU 161363.</p> <p> 161364 AND UP.</p>				

Figure 5. Seals (Doors 153, 181, and 182) Replacement (Sheet 2)

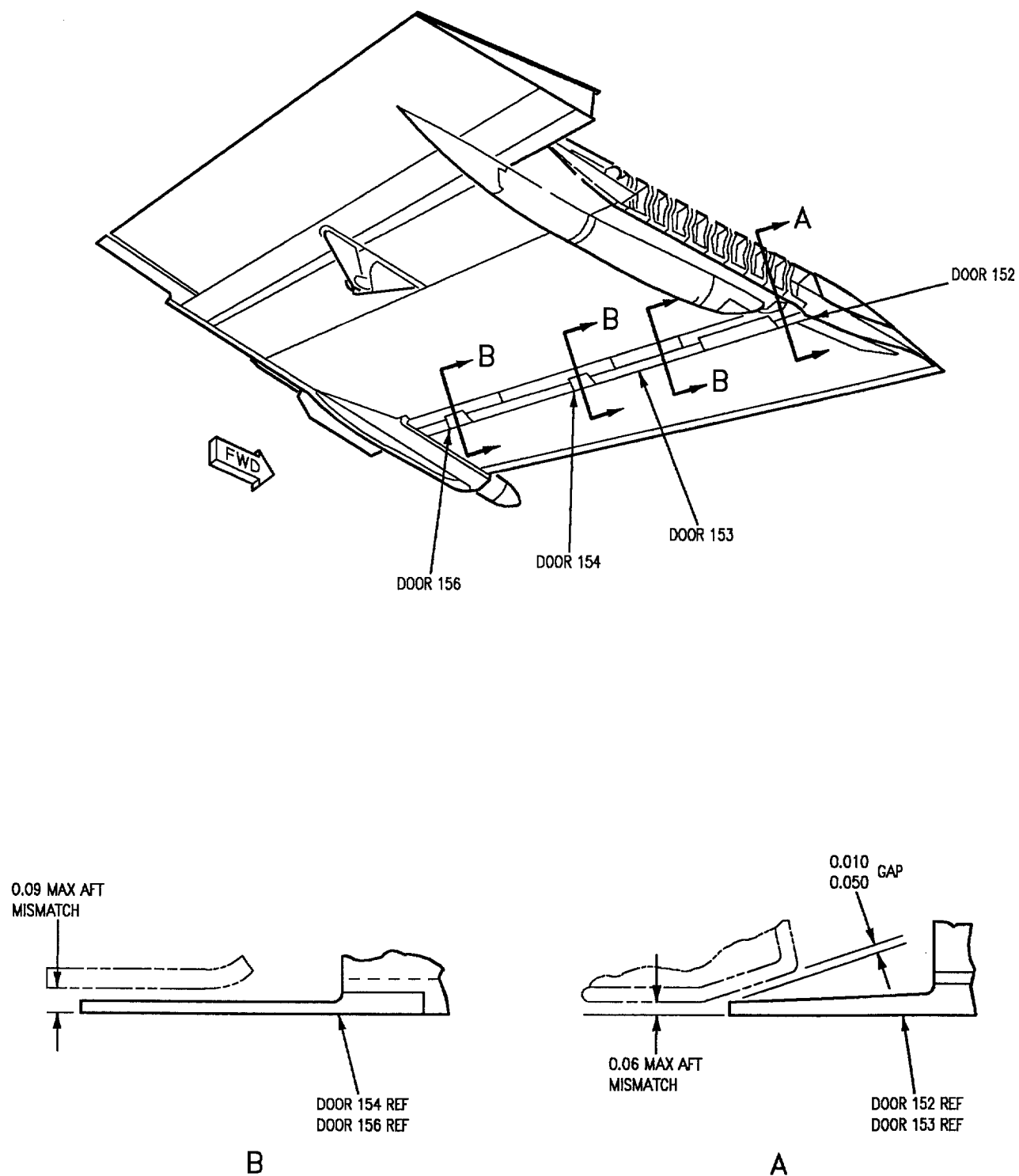


Figure 6. Seals (Doors 152, 153, 154, and 156) Gap and Mismatch



## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## OUTER WING SKIN FASTENERS, UPPER AND LOWER

## Reference Material

Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Integrated Flight Controls .....	A1-F18AC-570-300
Inboard Leading Edge Flap Transmission (84MAV505 or 84MAV501) .....	WP030 00
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Line Maintenance Manual .....	A1-F18AC-LMM-000
Nondestructive Inspection .....	A1-F18AC-SRM-300
Outer Wing Lower Skin to Rib Joint Cracked or Broken Fasteners .....	WP024 02
Plane Captain Manual .....	A1-F18AC-PCM-000
Structure Repair, General Information .....	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00

## Alphabetical Index

Subject	Page No.
Description .....	1
Outer Wing, Wing Fold Rib, Lower Fasteners Repair .....	1

## Record of Applicable Technical Directives

None

## Support Equipment Required

None

wing. For upper skin fasteners, see figure 1. For lower skin fasteners, see figure 2.

## Materials Required

None

3. OUTER WING, WING FOLD RIB, LOWER FASTENERS REPAIR. See figure 3. Repair of wing fold rib fasteners is depot level maintenance.

## Support Equipment Required

## 1. DESCRIPTION.

Nomenclature

Part Number or  
Type Designation

2. This work package identifies and locates the fasteners on the upper and lower skins of the outer

Torque Wrench,  
160 to 180 inch-pounds

-

## Materials Required

Nomenclature	Specification or Part Number
Nut, Self-Locking	TLN1002CD3-5
Nut, Self-Locking (1 per Fastener Repair)	TLN1023CD3-6N
Rivet, Blind (Nominal, Length as Required)	PLT1100-12-( )
Rivet, Blind	PLT1101-12-( )
Rivet, Blind	PLT1102-12-( )
Sealing Compound	MIL-S-83430
Threaded Pin-Rivet	HLT53YC-10-17
Threaded Pin-Rivet (Oversized)	HLT153TB-10-17
Washer	AN960JD516L
Washer, Concave (1 per Fastener Repair)	TLN1023CD3L6W

a. Remove electrical and hydraulic power (A1-F18AC-LMM-000).

b. Make sure all applicable safety devices are installed (A1-F18AC-PCM-000).

c. Remove doors 91, 159, and 191 (A1-F18AC-LMM-010).

d. Lower the leading edge flaps to extended position for access to attaching hardware on outer wing, wing fold rib upper skin fastener, holes number 1 and 2, view A, (A1-F18AC-570-300, WP030 00).

e. Using a thickness gauge, measure the gap between the nut and the rib surface on upper fasteners, numbers 1 and 2.

(1) If gap is 0.004 inch or less at all points around the edge of nut, then go to step g.

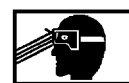
(2) If gap is 0.005 or more at any point around the nut, then replacement of nut is required.

f. Replace nut at fastener hole numbers 1 and 2:

(1) Remove existing fastener and attaching hardware.



Sealing Compound



6

(2) Reinstall existing fastener with a self-locking nut and a concave washer under the nut. Install fastener wet with MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00).

(3) Torque fastener 160 to 180 inch-pounds. Torque within 10 minutes of sealing compound application. Because of limited access to the nut, locate torque wrench at head of fastener.

(4) Apply sealing compound to fastener threads, nut, and washer after fastener torque-up to provide corrosion prevention.

(5) Refinish area around replaced fastener (A1-F18AC-SRM-500, WP027 00).

g. Do NDI to determine if wing fold rib lower skin fasteners, hole numbers 1 thru 47, 333, and 384 are cracked or broken, view B, per (A1-F18AC-SRM-300, WP024 02).

## NOTE

Fasteners at hole numbers 19, 21, and 384 may be inaccessible because of fixed fairings. Inspect these only if complete fastener is accessible.

h. If no cracked or broken fasteners are found, go to step k.

i. If loose, cracked, or broken fastener is detected by NDI at fastener hole numbers 1, 2, or 3, replace fastener:

(1) Remove nut from damaged fastener and push fastener out through rib.

(2) Inspect hole diameters in skin and rib for nominal size.

(a) For fastener hole numbers 1 and 2, skin nominal diameter is 0.3120 +0.0020, -0.0000; rib nominal diameter is 0.3075 +0.0030, -0.0000.

(b) For fastener hole number 3, skin nominal diameter is  $0.3276 +0.0020, -0.0000$ ; rib nominal diameter is  $0.3231 +0.0030, -0.0000$ .

(3) For nominal fastener holes, install replacement fasteners:

(a) For fastener hole numbers 1 and 2, install HLT53YC-10-17 threaded pin, AN960JD516L washer, and TLN1002CD3-5 nut. Install wet with MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00). Tighten fastener within 10 minutes of application of sealing compound.

(b) For fastener hole number 3, install HLT53TB-10-17 threaded pin, AN960JD516L washer, and TLN1002CD3-5 nut. Install wet with MIL-S-83430 sealing compound (A1-F18AC-SRM-200, WP011 00). Tighten fastener within 10 minutes of application of sealing compound.

(4) For fastener holes that are not nominal, an engineering disposition is required.

j. If loose, cracked, or broken fastener is detected by NDI at fastener hole numbers 4 thru 47, 383 and 384, replace fastener:

#### NOTE

It may be required to remove upper skin fastener opposite the lower skin fastener being drilled out to allow use of a wrench on the upper fastener nut.

(1) Remove head of fastener and drill out remaining part.

(a) Use a maximum drill size of 0.312 diameter.

(b) Use a punch and plastic mallet to drive any remaining part of fastener into outer wing torque box.

(2) Prepare fastener hole for installation of 3/8-inch blind rivet, using piloted reamers, with a minimum interference fit of 0.001 inch For drilling composite material (A1-F18AC-SRM-200, WP04 08).

(a) Remove 1/32-inch in first pass.

(b) Remove 1/64-inch in second pass.

(3) Measure the grip length and overall height clearance of fastener hole, view B. Opposite upper skin fastener may need to be backed-out for installation of blind rivet.

(4) Get correct size blind rivet. Measure shank diameter.

(5) Select correct piloted reamer to ream hole for blind rivet, with a 0.001 inch interference fit.

(6) Ream fastener hole, if required, with minimum 0.001 inch interference fit for blind rivet diameter.

#### NOTE

Slight protrusion of clearance hole into titanium fold rib is allowable to be sure full length of fastener hole is opened to Class 2 fit.

(7) Ream clearance hole in skin only, to 3/8-inch diameter, Class 2 fit. For Fastener Hole Classified Data (A1-F18AC-SRM-200, WP04 15).

(8) Countersink fastener hole to  $0.762 \pm 0.005$ .

(9) Inspect reamed hole and countersink for correct size and interference fit.

(10) Deburr far side of hole.

(11) With wing in folded position, inject sealing compound into fastener hole to trap driven out fastener shank per Foreign Object (F.O.) Sealing (A1-F18AC-SRM-200, WP011 00).

(12) Install blind rivet. Install wet with sealing compound per Fastener Sealing (A1-F18AC-SRM-200, WP011 00).

k. Refinish area around replaced fastener (A1-F18AC-SRM-500, WP027 00).

l. Install doors 91, 159, and 191 (A1-F18AC-LMM-010).



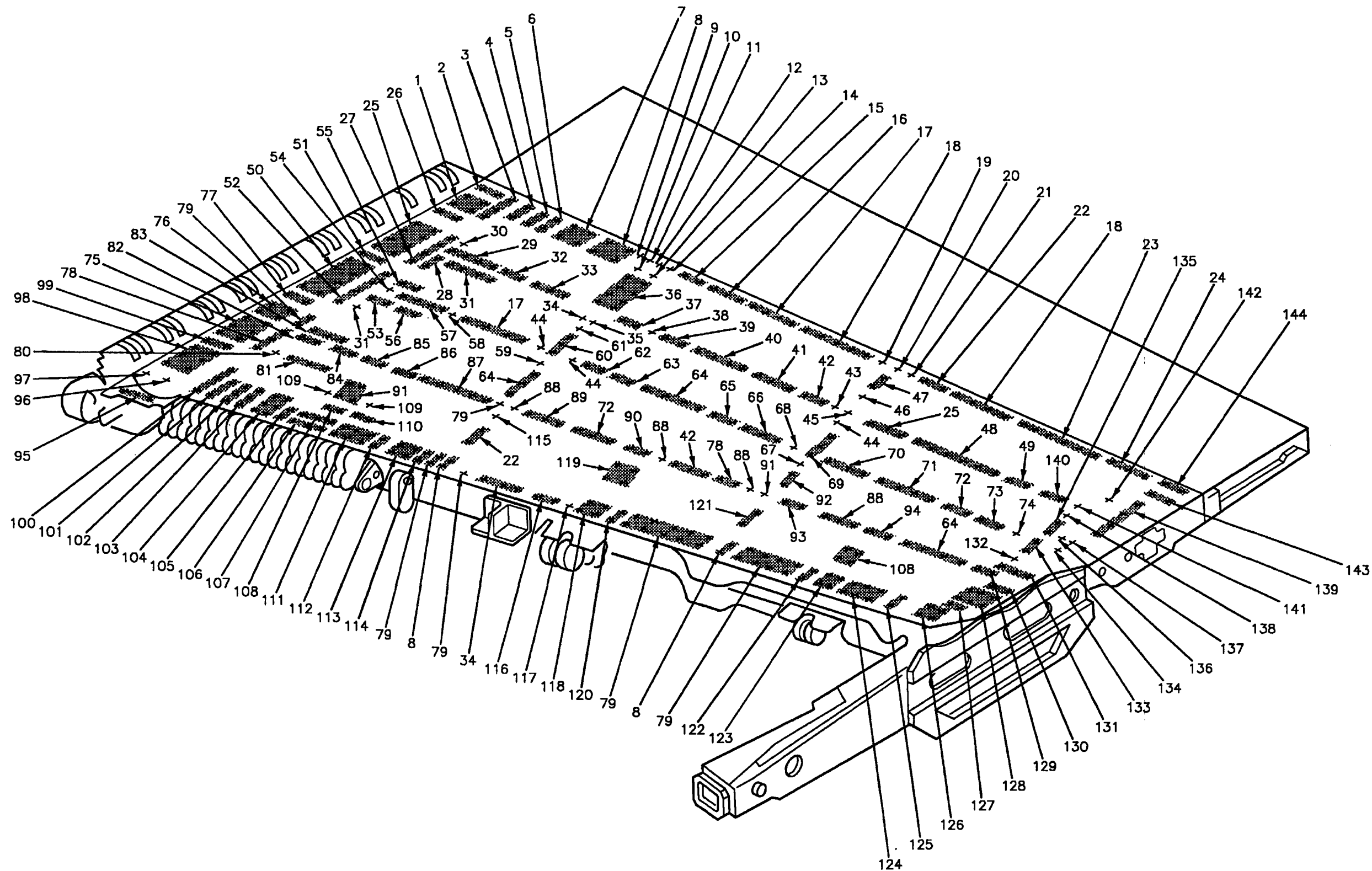


Figure 1. Outer Wing Upper Skin Fasteners (Sheet 1)

Idx No.	Eft		Nomenclature	Part Number
1			Bolt Shim Gang Channel	HT4025L5-17 74A150755-2151 G51490E5-9-2
2			Bolt Gang Channel	HT4025L4-17 G51490E4-7-2
3			Bolt Gang Channel	NAS664V15HT G12094J4-8-3
4			Bolt Radius Block Gang Channel	NAS664V14HT 74A150755-2233 G12094J4-13-2
5			Bolt Radius Block Gang Channel	NAS664V14HT 74A150755-2231 G12094J4-10-2
6			Bolt Radius Block Gang Channel	NAS664V14HT 74A150755-2239 G12094J4-8-2
7			Bolt Spacer Gang Channel	NAS664V12HT 74A150755-2181 G12094J4-8-2
8			Bolt Gang Channel	NAS664V9HT G12093J2-4-8-2
9			Bolt Shim Clip Nut Gang Channel Bracket	HT4025L5-15 74A150755-2163 K49300-5 G12590-2-5 G18421JL-2-5-10 74A150789-2017
10			Bolt Shim Chip Nut Gang Channel Bracket	HT4025L5-15 74A150755-2167 K49300-5 G12590-2-5 G18421JL-2-5-10 74A150789-2017
11			Bolt Shim Clip Nut Retainer Bracket	HT4025L5-15 74A150755-2163 K49300-5 G12590-2-5 F49251-5FB 74A150789-2017

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 2)

Idx No.	Eft		Nomenclature	Part Number
12			Bolt Shim Clip Nut Retainer Bracket	HT4025L5-15 74A150755-2163 K49300-5 G12590-2-5 F49251-5FB 74A150789-2019
13			Bolt Shim Clip Nut Gang Channel Bracket	HT4025L5-15 74A150755-2167 K49300-5 G12590-2-5 G18421JL-2-5-10 74A150789-2019
14			Bolt Shim Clip Nut Gang Channel Bracket	HT4025L5-15 74A150755-2163 K49300-5 G12590-2-5 G18421JL-2-5-10 74A150789-2019
15			Bolt Gang Channel	NAS664V9HT G12093J2-4-9-2
16			Bolt Gang Channel	NAS664V9HT G12093J2-4-7-3
17			Bolt Gang Channel	NAS664V9HT G12093J2-4-8-4
18			Bolt Gang Channel	NAS664V8HT G12093J2-4-9-5
19			Bolt Plate Nut	NAS664V8HT F49249E4-2
20			Bolt Gang Channel	HT4025L4-11 G12093J2-4-9-3
21			Bolt Plate Nut	HT4025L4-11 NS103597-048
22			Bolt Gang Channel	NAS664V9HT G12093J2-4-10-2
23			Bolt Gang Channel	NAS664V7HT G12093J2-4-9-5
24			Bolt Gang Channel	NAS664V7HT G12093J2-4-10-3
25			Bolt Shim Gang Channel	HT4025L5-16 74A150755-2117 G51490E5-9-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 3)

Idx No.	Eft		Nomenclature	Part Number
26			Bolt Gang Channel	HT4025L5-12 G51490E5-9-2
27			Bolt Gang Channel	NAS664V13HT G12093J2-4-9-2
28			Bolt Gang Channel	NAS664V11HT G12093J2-4-8-2
29			Bolt Gang Channel	NAS664V11HT G12093J2-4-8-5
30			Bolt Gang Channel	NAS664V11HT F49251E4-2
31			Bolt Gang Channel	NAS664V11HT G12093J2-4-8-4
32			Bolt Gang Channel	NAS664V10HT G12094J4-9-2
33			Bolt Gang Channel	NAS664V8HT G12093J2-4-8-3
34			Bolt Shim Gang Channel	HT4025L4-10 74A150755-2107 G51490E4-9-2
35			Bolt Shim Plate Nut	HT4025L4-10 4A150755-2107 F50403-4-2
36			Bolt Gang Channel	HT4025L4-12 G51490E4-8-4
37			Bolt Gang Channel	NAS664V8HT G12093J2-4-7
38			Bolt Plate Nut	NAS664V7HT F49251E4-2
39			Bolt Gang Channel	NAS664V7HT G12093J2-4-11-2
40			Bolt Gang Channel	NAS664V7HT G12093J2-4-8-4
41			Bolt Gang Channel	NAS664V6HT G12093J2-4-8-3
42			Bolt Gang Channel	NAS664V6HT G12093J2-4-10-2
43			Bolt Plate Nut	NAS664V6HT F49251E4-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 4)



Idx No.	Eft		Nomenclature	Part Number
44			Bolt Shim Gang Channel	NAS664V7HT 74A150755-2049 G12093J2-4-10-4
45			Bolt Shim Gang Channel	NAS664V8HT 74A150755-2049 G12093J2-4-9-2
46			Bolt Gang Channel	NAS664V8HT G12093J2-4-9-2
47			Bolt Gang Channel	NAS664V10HT G12093J2-4-9-3
48			Bolt Gang Channel	NAS664V5HT G12093J2-4-10-3
49			Bolt Gang Channel	NAS664V5HT G12093J2-4-10-2
50			Bolt Gang Channel	HT4025L5-15 G51490E5-9-2
51			Bolt Gang Channel	HT4025L5-11 G51490E5-9-2
52			Bolt Gang Channel	NAS664V12HT G12093J2-4-8-2
53			Bolt Gang Channel	NAS664V11HT G12093J2-4-9-4
54			Bolt Gang Channel	NAS664V11HT G12093J2-4-10-6
55			Bolt Gang Channel	NAS664V11HT G12094J4-10-2
56			Bolt Gang Channel	NAS664V10HT G12094J4-9-4
57			Bolt Gang Channel	NAS664V10HT G12094J4-10-6
58			Bolt Gang Channel	NAS664V9HT G12094J4-10-6
59			Bolt Gang Channel	NAS664V8HT G12094J4-9-4
60			Bolt Gang Channel	NAS664V8HT G12094J4-9-3
61			Bolt Gang Channel	NAS664V9HT G51490E4-9-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 5)

Idx No.	Eft		Nomenclature	Part Number
62			Bolt Gang Channel	NAS664V6HT G12094J2-4-12-2
63			Bolt Gang Channel	NAS664V6HT G12094J2-4-11-2
64			Bolt Gang Channel	NAS664V6HT G12094J2-4-8-4
65			Bolt Gang Channel	NAS664V6HT G12093J2-4-10-2
66			Bolt Gang Channel	NAS664V6HT G12093J2-10-3
67			Bolt Gang Channel	NAS664V8HT G12093J2-12-3
68			Bolt Plate Nut	NAS664V5HT F49249E4-2
69			Bolt Gang Channel	NAS664V6HT G12093J2-10-4
70			Bolt Gang Channel	NAS664V6HT G12093J2-8-3
71			Bolt Gang Channel	NAS664V5HT G12093J2-10-4
72			Bolt Gang Channel	NAS664V5HT G12093J2-8-2
73			Bolt Gang Channel	NAS664V8HT G12093J2-82
74			Bolt Plate Nut	NAS664V12HT NS103597-048
75			Bolt Shim Gang Channel	HT4025L5-15 74A150755-2027 G51490E5-9-3
76			Bolt Shim Gang Channel	HT4025L5-15 74A150755-2027 G51490E5-9-2
77			Bolt Tapered Filler Gang Channel	HT4025L5-11 74A150755-2071 G51490E5-9-2
78			Bolt Gang Channel	NAS664V13HT G12093J2-4-8-3
79			Bolt Gang Channel	NAS664V13HT G12093J2-4-8-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 6)

Idx No.	Eft		Nomenclature	Part Number
80			Bolt Plate	NAS664V15HT F49249E4-2
81			Bolt Gang Channel	NAS664V12HT G12093J2-10-3
82			Bolt Gang Channel	NAS664V12HT G12093J2-8-4
83			Bolt Gang Channel	NAS664V11HT G12093J2-8-3
84			Bolt Gang Channel	NAS664V11HT G12093J2-8-4
85			Bolt Gang Channel	NAS664V15HT G12093J2-4-9-3
86			Bolt Gang Channel	NAS664V10HT G12093J2-4-8-2
87			Bolt Gang Channel	NAS664V10HT G12093J2-4-9-5
88			Bolt Plate Nut	NAS664V6HT F49249E4-2
89			Bolt Gang Channel	NAS664V6HT G12093J2-4-7-3
90			Bolt Gang Channel	NAS664V11HT G12093J2-4-11-3
91			Bolt Gang Channel	NAS664V8HT G12093J2-4-11-3
92			Bolt Gang Channel	NAS664V8HT G12093J2-4-12-3
93			Bolt Gang Channel	NAS634V6HT G12093J2-4-8-2
94			Bolt Gang Channel	NAS664V11HT G12093J2-4-9-3
95			Bolt Radius Block Gang Channel	HT4024L4-5 74A150755-2191 G18421JL3-4-8
96			Bolt Nut Assembly	HT4049-6-14 VN376D-6W
97			Bolt Nut Assembly	HT4049-6-13 VN376D-6W
98			Bolt Gang Channel	HT4025L5-15 G51490E5-9-3

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 7)

Idx No.	Eft		Nomenclature	Part Number
99			Bolt Gang Channel	HT4025L5-11 G51490E5-9-2
100			Bolt Radius Block Gang Channel	HT4025L4-14 74A150755-2127 G51490E4-8-3
101			Bolt Tapered Shim Gang Channel	HT4025L4-14 74A150755-2129 G51490E4-10-2
102			Bolt Radius Block Gang Channel	HT4025L4-13 74A150755-2183 G51490E4-8-3
103			Bolt Radius Block Gang Channel	HT4025L4-13 74A150755-2187 G51490E4-8-3
104			Bolt Tapered Shim Gang Channel	HT4025L4-13 74A150755-2185 G51490E4-7-3
105			Bolt Tapered Shim Gang Channel	HT4025L4-12 74A150755-2189 G51490E4-11-2
106			Bolt Gang Channel	HT4025L4-14 G51490E4-7-3
107			Bolt Gang Channel	HT4025L4-15 G51490E4-7-3
108			Bolt Gang Channel	NAS664V15HT G12093J2-4-8-2
109			Bolt Plate Nut	NAS664V15HT F50340-4-2
110			Bolt Gang Channel	NAS664V15HT G12093J2-4-10
111			Bolt Gang Channel	HT4025L4-14 G51490E4-8-3
112			Bolt Radius Block Gang Channel	HT4025L5-11 74A150755-2057 G51490E5-9-2
113			Bolt Radius Block Gang Channel	NAS664V11HT 74A150755-2047 G12094J4-8-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 8)

Idx No.	Eft		Nomenclature	Part Number
114			Bolt Radius Block Gang Channel	NAS664V9HT 74A150755-2047 G12093J2-4-8-2
115			Bolt Gang Channel	NAS664V8HT G12093J2-4-8-2
116			Bolt Tapered Shim Gang Channel	NAS664V8HT 74A150755-2243 G12093J2-4-9-2
117			Bolt Plate Nut	NAS664V8HT NS20212-048
118			Bolt Gang Channel	HT4025L4-11 G51490E4-8-2
119			Bolt Filler Gang Change	NAS664V11HT 74A150755-2051 G12093J2-4-11-3
120			Bolt Tapered Shim Gang Channel	NAS664V8HT 74A150755-2245 G12093J2-4-8-2
121			Bolt Filler Gang Channel	NAS664V8HT 74A150755-2053 G12093J2-4-11-3
122			Bolt Radius Block Gang Channel	NAS664V9HT 74A150755-2039 G12093J2-4-8-2
123			Bolt Shim Gang Channel	HT4025L4-11 74A150755-2043 G51490E4-8-2
124			Bolt Tapered Shim Gang Channel	HT4025L4-10 74A150755-2247 G51490E4-8-2
125			Bolt Gang Channel	HT4025L4-10 G5149E4-8-2
126			Screw Gang Channel	HT4049-5-11 G10851-5-9-2
127			Bolt Gang Channel	HT4025L4-8 G5149E4-9-2
128			Bolt Gang Channel	HT4025L4-8 G5149E4-8-3
129			Bolt Gang Channel	HT4025L4-11 G5149E4-9-2

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 9)

Idx No.	Eft		Nomenclature	Part Number
130			Bolt Gang Channel	HT4025L4-11 G5149E4-8-2
131			Bolt Gang Channel	HT4025L5-8 G5149E5-8-3
132			Bolt Retainer Nut Clip	HT4025L5-8 F49249-5FB G12590-2-5 K49300-5
133			Screw Nut	HT4049-6-14 F49249E5-1
134			Bolt Nut	HT4025L5-7 TLN1002CD3-5
135			Bolt Gang Channel	HT4025L5-7 G51490E5-2-10
136			Bolt Retainer Nut Clip	HT4025L5-7 F49251-5FB G12590-2-5 K49300-5
137			Bolt Washer Nut	HT4025L4-7 AN960JD416L NAS1291C4M
138			Bolt Shim Retainer Nut Clip	NAS66410HT 74A150755-2361 F49251-4FB G12590-2-4 K49300-4
139			Bolt Washer Nut	NAS664V5HT AN960JD416L NAS1291C4
140			Bolt Gang Channel	NAS664V10HT G51490E4-9-3
141			Bolt Shim Gang Channel	NAS664V10HT 74A150755-2361 G51490E4-9-3
142			Bolt Retainer Nut Clip	NAS664V7HT F49249-4FB G12590-2-4 K49300-5
143			Bolt Washer Nut	NAS664V8HT AN960PD416L NAS1291C4M

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 10)

Idx No.	Eft		Nomenclature	Part Number
144			Bolt Shim Washer Nut	NAS664V8HT 74A150755-2081 AN960PD416L NAS1291C4M

Figure 1. Outer Wing Upper Skin Fasteners (Sheet 11)

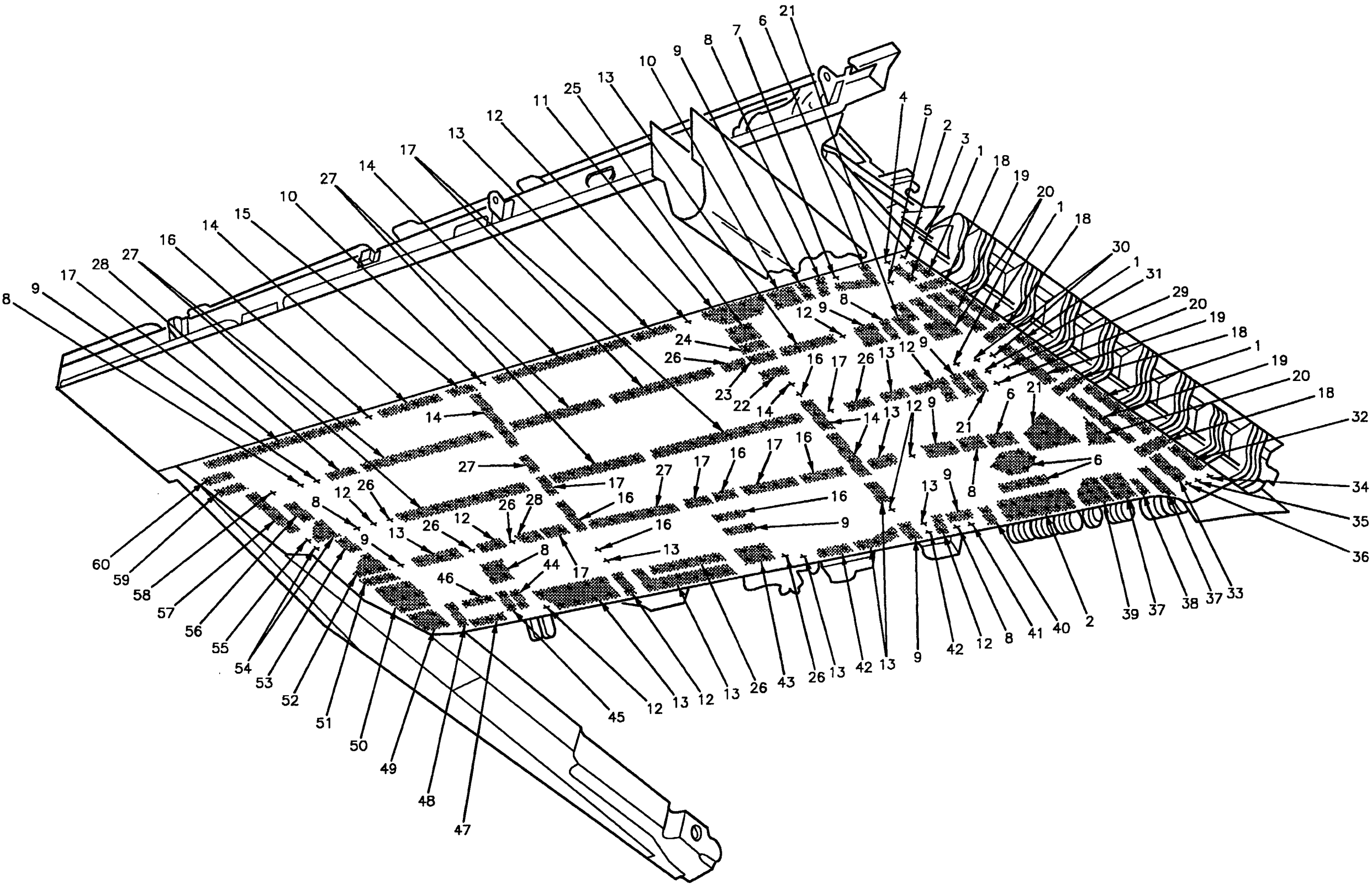


Figure 2. Outer Wing Lower Skin Fasteners (Sheet 1)



Idx No.	Eft		Nomenclature	Part Number
1			Pin Washer Nut	HLT53DL-10-14 AN960JD TLN1002CD3-5
2			Pin Collar	HLT53DL-8-14 SW1000-8M
3			Pin Washer Nut	HLT53DL-10-18 AN960JD TLN1002CD3-5
4			Pin Collar	HLT53DL-8-18 SW1000-8M
5			Pin Collar	HLT313DL-8-19 HL570-8MC
6			Pin Collar	HLT313DL-8-14 HL570-8MC
7			Pin Collar	HLT313DL-8-16 HL57-8MC
8			Pin Collar Washer	HLT313DL-8-11 HL582-8MCA SW2000-8W
9			Pin Collar Washer	HLT313DL-8-10 HL582-8MCA SW2000-8W
10			Pin Collar	HLT313DL-8-9 HL57-8MC
11			Pin Collar	HLT53DL-10-15 SW1000-10M
12			Pin Collar Washer	HLT313DL-8-9 HL582-8MCA SW2000-8W
13			Pin Collar Washer	HLT313DL-8-8 HL582-8MCA SW2000-8W
14			Pin Collar	HLT313DL-8-8 HL57-8MC
15			Pin Collar	HLT53DL-8-12 SW1000-10M
16			Pin Collar	HLT313DL-8-7 HL57-8MC
17			Pin Collar	HLT313DL-8-6 HL57-8MC

Figure 2. Outer Wing Lower Skin Fasteners (Sheet 2)

Idx No.	Eft		Nomenclature	Part Number
18			Pin Nut	HLT53DL-10-12 VN376D(10)W
19			Pin Washer Nut	HLT53DL-10-16 AN960JD TLN1002CD3-5
20			Pin Collar Washer	HLT313DL-8-13 HL582-8MCA SW2000-8W
21			Pin Collar Washer	HLT313DL-8-12 HL582-8MCA SW2000-8W
22			Pin Shim Collar Washer	HLT53DL-8-9 74A150755-2105 SW2000-8A SW2000-8W
23			Pin Shim Collar Washer	HLT53DL-8-9 74A150755-2113 SW2000-8A SW2000-8W
24			Pin Collar	HLT53DL-8-10 SW1000-8M
25			Pin Collar	HLT53DL-8-11 SW1000-8M
26			Pin Collar Washer	HLT313DL-8-7 HL582-8MCA SW2000-8W
27			Pin Collar	HLT313DL-8-5 HL57-8MC
28			Pin Collar Washer	HLT313D-8-6 HL582-8MCA SW2000-8W
29			Pin Collar	HLT310DL-8-17 HL57-8MC
30			Pin Collar	HLT310DL-8-15 HL57-8MC
31			Pin Collar Washer	HLT310DL-8-15 HL582-8MCA SW2000-8W

Figure 2. Outer Wing Lower Skin Fasteners (Sheet 3)

Idx No.	Eft		Nomenclature	Part Number
32			Pin Shim Washer Nut	HLT53DL-10-15 74A150755-2133 AN960JD TLN1002CD3-5
33			Pin Shim Washer Nut	HLT53DL-10-17 74A150755-2133 AN960JD TLN1002CD3-5
34			Pin Radius Block Washer Nut	HLT33TB-10-17M 74A150755-2431 AN960JD516L TLN1002CD3-5
35			Pin Washer Nut	HLT33TB-10-17M AN960JD516L TLN1002CD3-5
36			Pin Washer Nut	HLT153DL-10-17 AN960JD516L TLN1002CD3-5
37			Pin Collar Washer	HLT53DL-8-14 SW2000-8A SW2000-8W
38			Pin Collar Washer	HLT53DL-8-13 SW2000-8A SW2000-8W
39			Pin Collar Washer	HLT53DL-8-12 SW2000-8A SW2000-8W
40			Pin Collar Washer	HLT53DL-10-13 SW2000-10A SW2000-10W
41			Pin Collar	HLT313DL-8-11 VN376D4W
42			Pin Nut	HLT33TB-8-8 VN376D4W
43			Pin Shim Nut	HLT33TB-8-10 74A150755-2041 VN376D4W
44			Pin Shim Nut	HLT33TB-8-11 74A150755-2043 VN376D4W

Figure 2. Outer Wing Lower Skin Fasteners (Sheet 4)

Idx No.	Eft		Nomenclature	Part Number
45			Pin Shim Nut	HLT33TB-8-12 74A150755-2043 VN376D4W
46			Pin Collar Washer	HLT53DL-8-10 SW2000-8A SW2000-8W
47			Pin Collar Washer	HLT53DL-8-11 SW2000-8A SW2000-8W
48			Pin Nut	HLT33TB-8-11 VN376D4W
49			Bolt Washer Nut	HT4049-5-10 AN960JD516L LH12180-5
50			Bolt Nut	HT4049-4-8 TLN1002CD3-4
51			Bolt Nut	HT4049-4-11 TLN1002CD3-4
52			Bolt Nut	HT4049-5-8 TLN1002CD3-5
53			Bolt Shim Nut	HT4049-5-12 74A150755-2353 TLN1002CD3-5
54			Bolt Nut	HT4049-5-7 TLN1002CD3-5
55			Bolt Nut	HT4049-4-7 TLN1002CD3-4
56			Bolt Shim Washer Nut	HT4049-4-10 74A150755-2365 AN960JD416 NAS1291C4M
57			Bolt Washer Nut	HT4049-4-5 AN960JD416 NAS1291C4M
58			Bolt Washer Nut	HT4049-4-7 AN960JD416 NAS1291C4M
59			Bolt Washer Nut	HT4049-4-8 AN960JD416L NAS1291C4M

Figure 2. Outer Wing Lower Skin Fasteners (Sheet 5)

Idx No.	Eft		Nomenclature	Part Number
60			Bolt Shim Washer Nut	HT4049-4-9 74A150755-2081 AN960JD416L NAS1291C4M

Figure 2. Outer Wing Lower Skin Fasteners (Sheet 6)

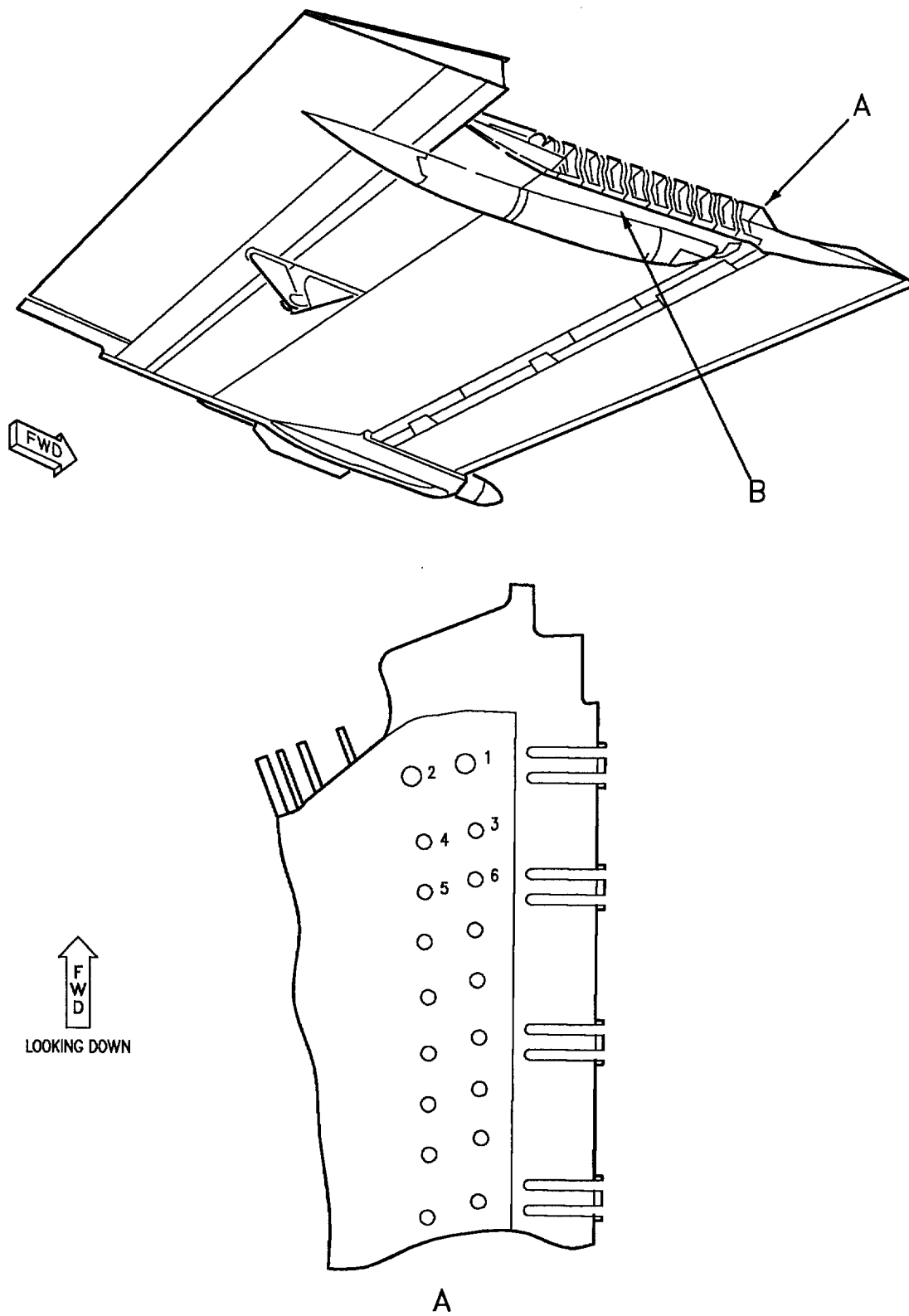
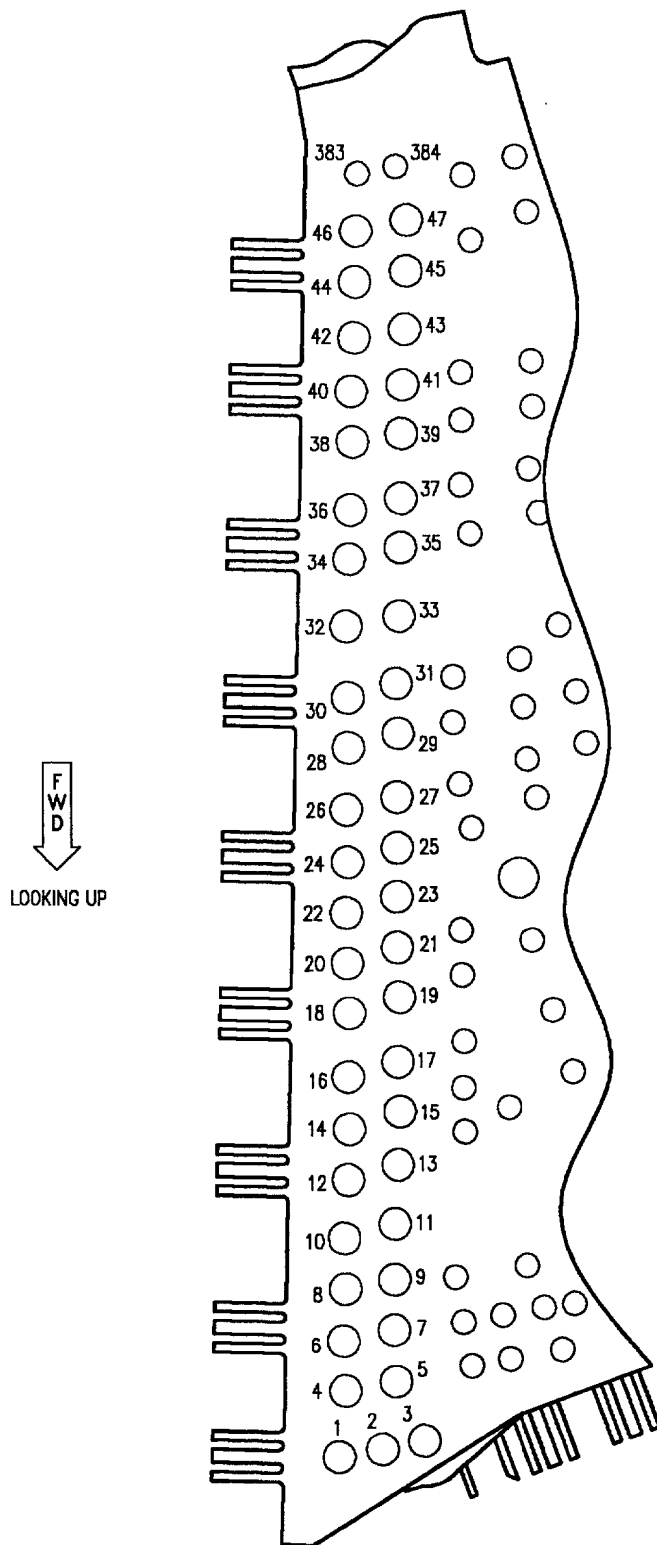


Figure 3. Wing Fold Rib, Lower Fasteners (Sheet 1)



LOWER SKIN FASTENER HOLES	
HOLE NUMBER	FASTENER LENGTH
1	17
2	17
3	17
4	15
5	17
6	15
7	17
8	15
9	17
10	12
11	12
12	14
13	16
14	14
15	16
16	14
17	16
18	14
19	16
20	14
21	16
22	12
23	12
24	14
25	16
26	14
27	16
28	14
29	16
30	14
31	16
32	12
33	12
34	14
35	16
36	14
37	16
38	14
39	16
40	14
41	16
42	12
43	12
44	14
45	18
46	14
47	18
383	14
384	18

B

Figure 3. Wing Fold Rib, Lower Fasteners (Sheet 2)





## ORGANIZATIONAL MAINTENANCE

### STRUCTURE REPAIR

### OUTER WING HOLE NUMBERS

#### Reference Material

None

#### Alphabetical Index

	Subject	Page No.
Description .....		1

#### Record of Applicable Technical Directives

None

#### Support Equipment Required

None

ing outer wing skins and replacing fasteners. This WP is referenced from other WP's in this manual when hole number data is required.

#### Materials Required

None

#### NOTE

Do not confuse fastener hole numbers in this work package with the index numbers listed in WP014 01. Each individual hole is assigned a hole number. Index numbers are the link between an illustration and the chart listing the part numbers.

#### 1. DESCRIPTION.

2. This work package identifies outer wing hole numbers. Hole numbers are used when repairing or replac-



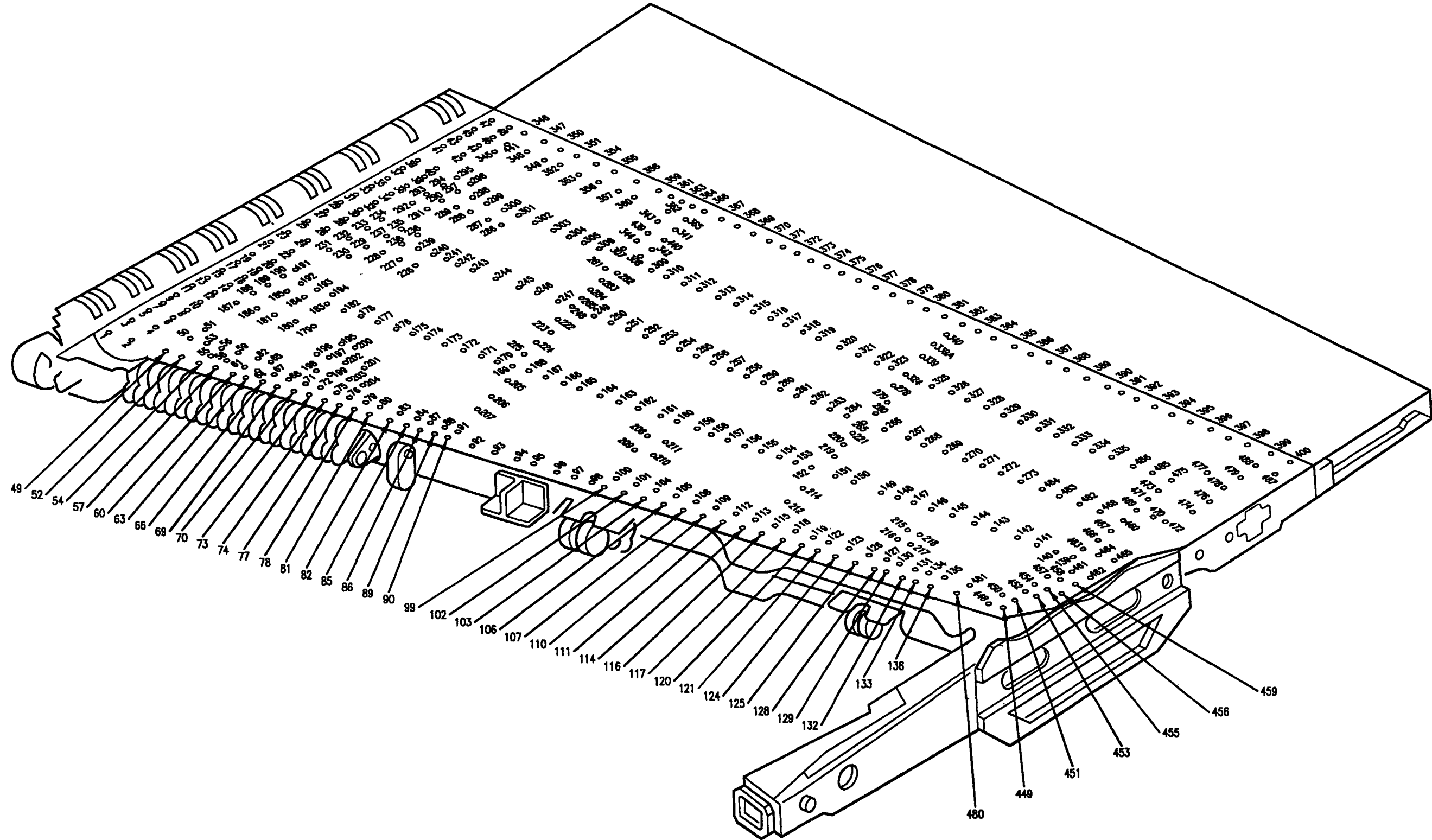
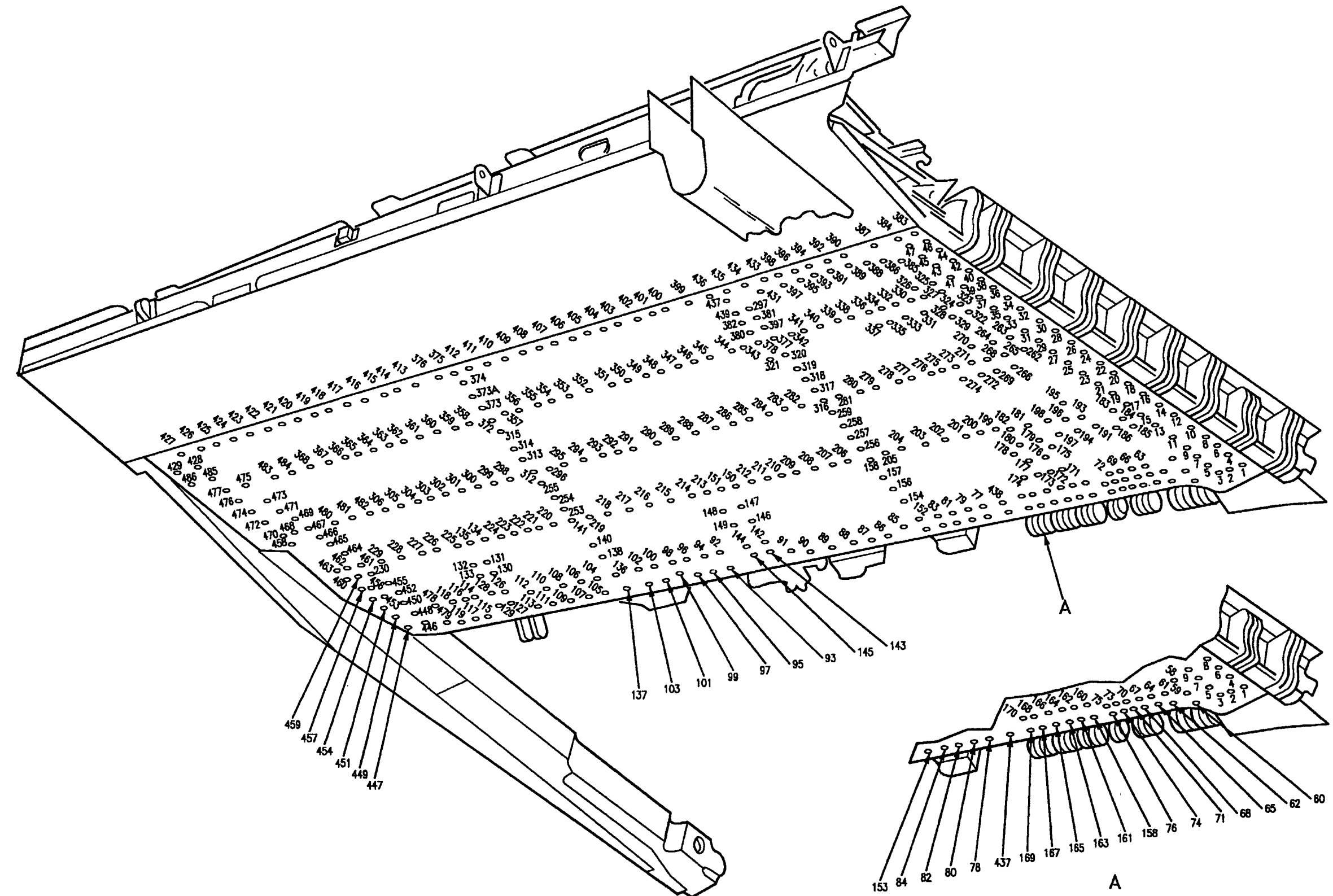


Figure 1. Outer Wing Upper Skin Hole Numbers



**Figure 2. Outer Wing Lower Skin Hole Numbers**

## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## OUTBOARD LEADING EDGE FLAP

PART No. 74A190202

EFFECTIVITY: 161353 THRU 161519

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Fairing - Wing Fold, Effectivity: 161353 THRU 161519 .....	WP016 02
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Outboard Flap, Water in Honeycomb .....	WP019 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class X Damage Repair .....	WP005 00
Water Removal .....	WP005 00
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class I Damage Repair .....	WP022 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class II Damage Repair .....	WP023 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class III Damage Repair .....	WP024 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IV Damage Repair .....	WP025 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class V Damage Repair .....	WP026 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VI Damage Repair .....	WP027 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VII Damage Repair .....	WP028 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VIII Damage Repair .....	WP029 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IX Damage Repair .....	WP030 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum and Titanium Sheet, Formed Structure .....	WP033 00
Aluminum Sheet Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509

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Repairs .....	4
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Metal Skins and Structure .....	4
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Repairs .....	5
Rework of Seal (74A190820 and 74A190860) .....	7

## Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/18-AFC27	-	Leading Edge Flap/Control Stick Changes, Incorporation Of (ECP MDA-F/A-18-00044C2)	1 Mar 87	-

## Support Equipment Required

None

## Materials Required

None

## 1. ALUMINUM SKIN AND ALUMINUM HONEYCOMB CORE.

2. DAMAGE EVALUATION. See figures 1, 2, and 3. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. NDI is intermediate maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

3. Negligible Damage. See figures 1 and 2. Negligible damage is damage which does not exceed the type and limits listed below and may be allowed to exist as is.

a. Smooth dents free of sharp corners and abrasions.

(1) Depth is no more than 0.015 inch.

(2) Diameter is not more than 0.5 inch.

(3) No more than three dents occur in any 3 inch diameter circle.

(4) No more than six dents occurring in any 10 inch diameter circle.

(5) Dents occurring in a line and spaced closer than 1-1/2 dent diameter and does not exceed 3 inches in length.

b. Voids and separations in the adhesive along the length of the bend radius of structural part and of edge member to core to which the core is bonded.

(1) The width is not wider than the bend radius.

(2) Voids and separations do not exceed 2 square inches in any 10 square inches.

(3) Voids and separations do not exceed more than five percent of the total bonded area.

**4. Repairable Damage.** See figures 1 and 3. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of aircraft. All damaged areas must be NDI inspected to determine the extent of damage.

**5. Voids or Unbonds Between Skin and Core, Class I Damage.** See figure 3, section A. Class I damage is damage which does not exceed the limits listed below:

a. Diameter is 4 inches or less.

b. Area of damage does not exceed four percent of bonded area.

**6. Dents without Honeycomb Core Damage, Class II Damage.** See figure 3, section B. Class II damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inches.

c. No crushed core or unbond.

**7. Dents with Honeycomb Core Damage, Class III Damage.** See figure 3, section C. Class III damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inch.

c. May have crushed core or unbonds.

**8. Damage Less than 1.5 Inches Length or Diameter to One Skin, Class IV Damage.** See figure 3, section D. Class IV damage is damage which does not exceed the limits listed below:

a. Damage to one skin only.

b. Length or diameter does not exceed 1.5 inches.

c. Core may or may not be damaged.

**9. Damage More than 1.5 Inches Length or Diameter, Up to 4 Inches Maximum, to One Skin, Class V Damage.** See figure 3, section E. Class V damage is damage which does not exceed the limits listed below:

a. Damage to one skin only.

b. Length or diameter is 1.5 to 4.0 inches.

c. Core damage of any level.

**10. Damage Less than 1.5 Inches Length or Diameter, to Both Skins, Class VI Damage.** See figure 3, section F. Class VI damage is damage which does not exceed the limits listed below:

a. Damage may be to both skins.

b. Length or diameter does not exceed 1.5 inches.

c. Core damage of any level.

**11. Damage More than 1.5 Inches Length or Diameter, Up to 4.0 Inches Maximum, to Both Skins, Class VII Damage.** Class VII damage includes cracks, bulges, punctures and sharp dents. See figure 3, section G, damage does not exceed the limits listed below:

a. Damage to both skins.

b. Crack 1.5 to 4.0 inches in length.

c. Bulges, punctures, and dents which can be enclosed in a circle more than 1.5 inches diameter, but less than 4.0 inches diameter.

d. Core damage of any kind.

**12. Structure to Skin or Honeycomb Core, Void or Unbond, Class VIII Damage,** see figure 3, section H.

Class VIII damage is damage which does not exceed the limits listed below:

- a. Between skin and edge member, not extending into core.
- b. Damage may or may not be open to edge.
- c. Voids between edge member and core.

13. Honeycomb Core Splice, Void or Unbond, Class IX Damage. See figure 3, section J, Class IX damage is damage that occurs at the honeycomb core splice line.

14. Water in Honeycomb Core, Class X Damage. Inspect for water in honeycomb core (A1-F18AC-SRM-300, WP019 00). Class X damage is water trapped in honeycomb core.

15. **REPAIRS.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair damage per Class IV or Class V damage. Classes I, II, III, IV, VI, VIII, IX, X are organizational maintenance. Classes V and VII are intermediate maintenance. Repair damages by the procedures referenced below:

- a. Repair class I damage and install patch (A1-F18AC-SRM-250, WP022 00).
- b. Repair class II damage (A1-F18AC-SRM-250, WP023 00).
- c. Repair class III damage and install patch (A1-F18AC-SRM-250, WP024 00).
- d. Repair class IV damage and install patch (A1-F18AC-SRM-250, WP025 00).
- e. Repair class V damage and install patch (A1-F18AC-SRM-250, WP026 00).
- f. Repair class VI damage and install patch (A1-F18AC-SRM-250, WP027 00).
- g. Repair class VII damage and install patch (A1-F18AC-SRM-250, WP028 00).
- h. Repair class VIII damage (A1-F18AC-SRM-250, WP029 00).

i. Repair class IX damage and install patch (A1-F18AC-SRM-250, WP030 00).

j. Repair class X damage (A1-F18AC-SRM-250, WP005 00).

## 16. FAIRING, WING FOLD.

17. For repair or replacement (WP016 02).

## 18. METAL SKINS AND STRUCTURE.

19. **DAMAGE EVALUATION.** See figures 1 and 4. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 4. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits below requires a depot engineering disposition.

20. **Negligible Damage.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

- a. Scratches are not allowed within one diameter from the edge of any hole.
- b. Smooth dents only, effective diameter at least 20 times the depth.

21. **Repairable Damage.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

### NOTE

The limits in table 2 apply after blending the damage.

- a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.



b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fastener diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, overstructure, only one repair per land.

e. Dents exceeding the limits in table 1 must be repaired.

22. **REPAIRS.** Types of repairs are temporary, one-time flight, permanent critical area, alternate and typical. Repair type definition are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

### 23. Permanent Repairs.

24. Scratches, Nicks, Gouges, or Corrosion. Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If, after blending, the damage limits of table 2 are exceeded, repair aluminum sheet. Refinish blended areas (A1-F18AC-SRM-500, WP027 00).

a. Scratches - make crack or edge repairs.

b. Nicks, gouges, or corrosion - make hole or edge repair.

### 25. Cracks.

a. In repair zones A1, A2, and A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Stop drill ends of cracks in repair zones A1 and A2. Completely cut out damage in smallest diameter circle in repair zone A4.

(2) In repair zones A1 and A2, install a lap patch.

(3) In repair zone A4, install a type two flush on lap patch.

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zones B3 and B4, repair cracks free of structure or land areas in aluminum sheet (0.050 inch thick or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repair area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4 make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land or Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zones A1, A2, and A4, repair cracks to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4 install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

### 26. Holes.

a. In repair zones A1, A2, or A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zones A1 and A2, install a type one flush or lap patch. In repair zone A4 install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zones B3 and B4, repair holes free of structure or land areas in aluminum sheet (0.050 inch thick or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair holes across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zones A1, A2, and A4, repair holes to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, install repair one through six. Select the repair that can be adapted to damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

27. Edge. In zones A1, A2, or A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full width Damage to End.

c. Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

28. Dents.

a. In repair zones A1, A2, or A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zones A1 and A2, install a type one flush or lap patch. In repair zone A4 install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zones B3 and B4, repair dents free of structure or land areas in aluminum sheet (0.050 inch thick or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zones A1, A2, and A4, repair dents to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, install repair one through six. Select the repair that can be adapted to damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

## 29. REWORK OF SEAL (74A190820 AND 74A190860). See figure 5.

a. Trim seal to allowable gap, views A and B.

b. Refinish trimmed edge (A1-F18AC-SRM-500, WP027 00).

Table 1. Negligible Damage Limits

















Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1  (3) and (21)	Skin Zone C3	0.250		0.0006	100%		
	Zone B4	0.250		0.0006	100%		
	Zone A4	0.250		0.0006	100%		
Fig 1 (4) and (24)	Plate Zone B4	0.090		0.0006	100%		
	Zone A4	0.090		0.0006	100%		
Fig 1 (5)	Seal Zone A2	0.080	0.002	0.002	100%	0.020	10%
Fig 1 (7)	Plate Zone A1	0.032	0.002	0.002	100%	0.016	10%

Table 1. Negligible Damage Limits (Continued)

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (12)	Spar						
	Zone C3	3	4	4	4	5	5
	Zone 02	3	4	0.0006	6	5	5
	Zone 05	3	4	0.0006	7	5	5
	Zone 06	3	4	0.0006	9	5	5
	Zone B4	3	4	4	4	5	5
	Zone 02	3	4	0.0006	6	5	5
	Zone 04	3	4	0.0006	10	5	5
	Zone 05	3	4	0.0006	7	5	5
	Zone 06	3	4	0.0006	9	5	5
	Zone B3	3	4	4	4	5	5
	Zone 05	3	4	0.0006	7	5	5
	Zone A4	3	4	4	4	5	5
	Zone 01	3	4	0.007	10	5	5
	Zone 02	3	4	0.0006	6	5	5
	Zone 03	3	4	0.007	8	5	5
Fig 1 (15)	Plate Zone A1	0.032	0.002	0.002	100%	0.016	10%
Fig 1 (19) 12	Cap						
	Zone B4	0.016	0.0006	0.0006	11	5	5
	Zone A4	0.016	0.002	0.002	11	5	5
Fig 1 (22) and (23)	Seal Zone A2	0.063	0.002	0.002	100%	0.020	10%

## NOTES

- 1 Figure 4, detail A.  
 2 Figure 4, detail B.  
 3 Various thickness.  
 4 Figure 4, detail C.  
 5 None allowed.  
 6 0.60 square inch combined in one zone.  
 7 1 square inch combined in one zone.  
 8 2 square inches combined in one zone.  
 9 2.2 square inches combined in one zone.  
 10 1.5 square inches combined in one zone.  
 11 1.2 square inches combined in one zone.  
 12 Remove segment of damaged or undamaged polyurethane tape to determine allowable damage limits to assembly.

Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Corrosion		Holes
				Depth	Area	Depth	Area	
Fig 1 24 (3) and (21)	Skin							
	Zone C3	0.250	2	2	2	2	2	15
	Zone 06	0.250	2	0.004	13	0.004	13	15
	Zone B4	0.250	2	2	2	2	2	15
	Zone 02	0.250	2	0.008	10	0.008	10	15
	Zone 06	0.250	2	0.004	13	0.004	13	15
	Zone A4	0.250	2	2	2	2	2	15
	Zone 01	0.250	2	0.006	11	0.006	11	15
	Zone 03	0.250	2	0.012	12	0.012	12	15
	Zone 04	0.250	2	0.0056	13	0.0056	13	15
	Zone 05	0.250	2	0.008	14	0.008	14	15
	Zone 06	0.250	2	0.004	13	0.004	13	15
Fig 1 (4) and (24)	Plate							
	Zone B4	0.090	1	1	1	1	1	16
	Zone 01	0.090	1	0.0006	8	0.0006	8	16
	Zone 02	0.090	1	0.0006	9	0.0006	9	16
	Zone 03	0.090	1	0.018	5	0.018	5	16
	Zone A4	0.090	1	1	1	1	1	16
	Zone 01	0.090	1	0.0006	8	0.0006	8	16
	Zone 04	0.090	1	0.018	10	0.018	10	16
Fig 1 (5)	Seal							
	Zone A2	0.080	0.013	0.013	3	0.013	3	4
Fig 1 (7)	Plate							
	Zone A2	0.032	0.007	0.007	5	0.007	5	4
Fig 1 (12)	Spar							
	Zone C3	6	7	7	7	7	7	20
	Zone 02	6	7	0.0006	17	0.0006	17	20
	Zone 05	6	7	0.014	18	0.014	18	20
	Zone 06	6	7	0.025	19	0.025	19	20
	Zone 07	6	7	0.0006	19	0.0006	19	20
	Zone B4	6	7	7	7	7	7	20
	Zone 01	6	7	0.014	8	0.014	8	20
	Zone 02	6	7	0.0006	17	0.0006	17	20
	Zone 04	6	7	0.014	19	0.014	19	20
	Zone 05	6	7	0.014	18	0.014	18	20
	Zone B3	6	7	7	7	7	7	20
	Zone 07	6	7	0.0006	19	0.0006	19	20
	Zone A4	6	7	7	7	7	7	20
	Zone 01	6	7	0.014	8	0.014	8	20
	Zone 02	6	7	0.006	17	0.006	17	20
	Zone 03	6	7	0.014	5	0.014	5	20
Fig 1 (15)	Plate							
	Zone A2	0.032	0.007	0.007	5	0.007	5	4

Table 2. Repairable Damage Limits After Blending (Continued)

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Corrosion		Holes
				Depth	Area	Depth	Area	
Fig 1 (19) 24	Cap	0.016	0.003	0.003	22	0.003	22	21
	Zone B4 Zone A4	0.016	0.003	0.003	22	0.003	22	23
Fig 1 (22) and (23)	Seal Zone A2	0.063	0.013	0.013	3	0.013	3	4

## NOTES

- 1 Figure 4, detail A.
- 2 Figure 4, detail B.
- 3 2.4 square inch combined in one zone.
- 4 0.250 inch diameter hole, hole must be 0.50 from any edge, 0.75 from any fastener.
- 5 4 square inches combined in one zone.
- 6 Various thickness.
- 7 Figure 4, detail C.
- 8 3 square inches combined in one zone.
- 9 3.5 square inches combined in one zone.
- 10 7 square inches combined in one zone.
- 11 25 square inches combined in one zone.
- 12 15 square inches combined in one zone.
- 13 7.5 square inches combined in one zone.
- 14 18 square inches combined in one zone.
- 15 Figure 4, detail B holes must be 1 inch from chem-mill step and spar, 0.50 inch from edge of part. Hole must be plugged/sealed to prevent moisture from entering flap.
- 16 Figure 4, detail A, holes must be plugged/sealed to prevent moisture from entering flap.
- 17 1.2 square inches combined in one zone.
- 18 4.5 square inches combined in one zone.
- 19 2 square inches combined in one zone.
- 20 Figure 4, detail C, hole must be 0.75 from spar flanges, 0.50 from spar stiffeners. Hole must be plugged/sealed to prevent moisture from entering flap.
- 21 None allowed.
- 22 1.8 square inches combined in one zone.
- 23 0.250 inch diameter holes allowed, holes must be plugged/sealed to keep moisture from entering flap. Inspect region for delaminations to underlying fiberglass/epoxy structure and for unbonds of cap to fiberglass/epoxy bondline.
- 24 Remove segment of damaged or undamaged polyurethane tape to determine allowable limits to assembly.

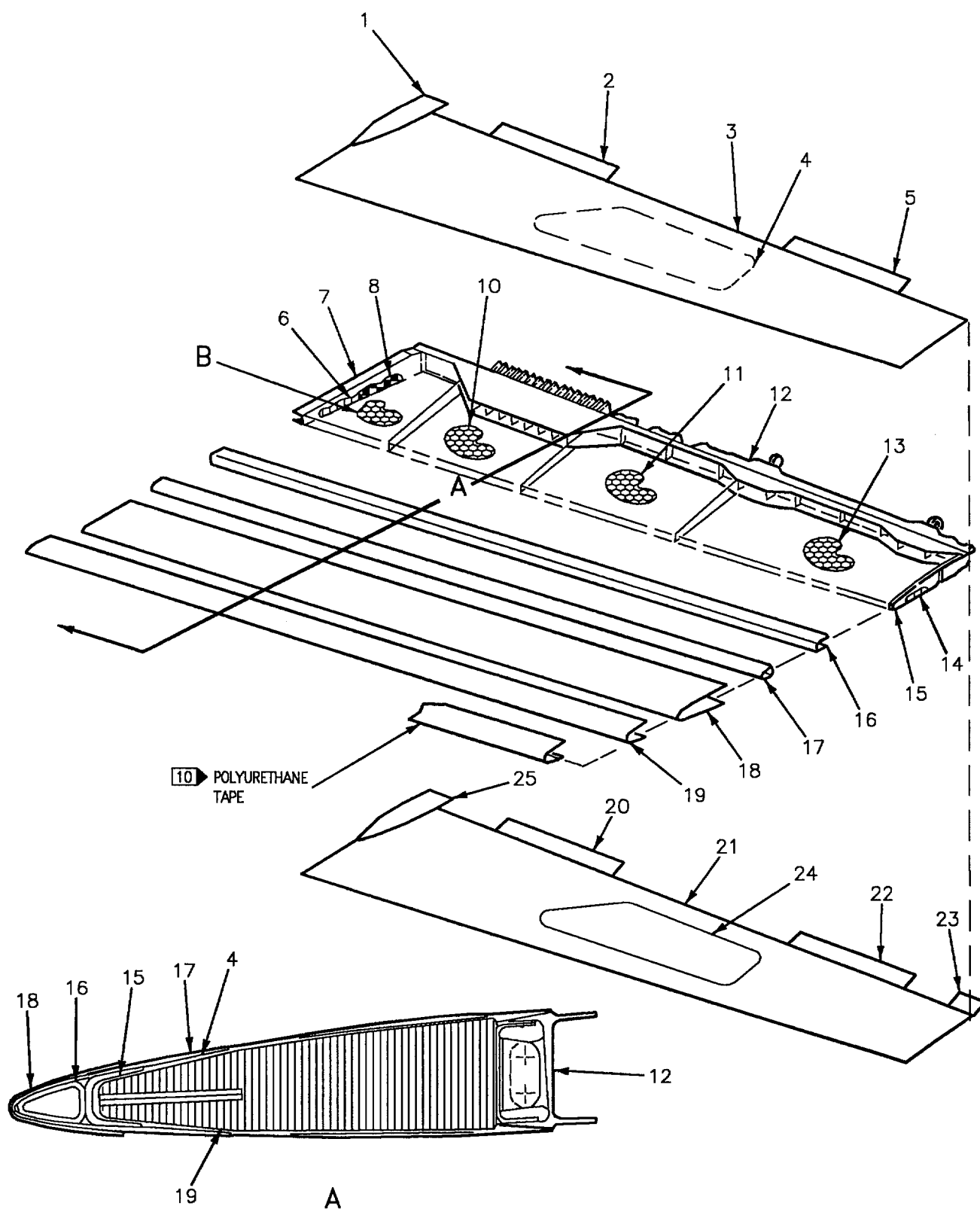


Figure 1. Material Index (Sheet 1)

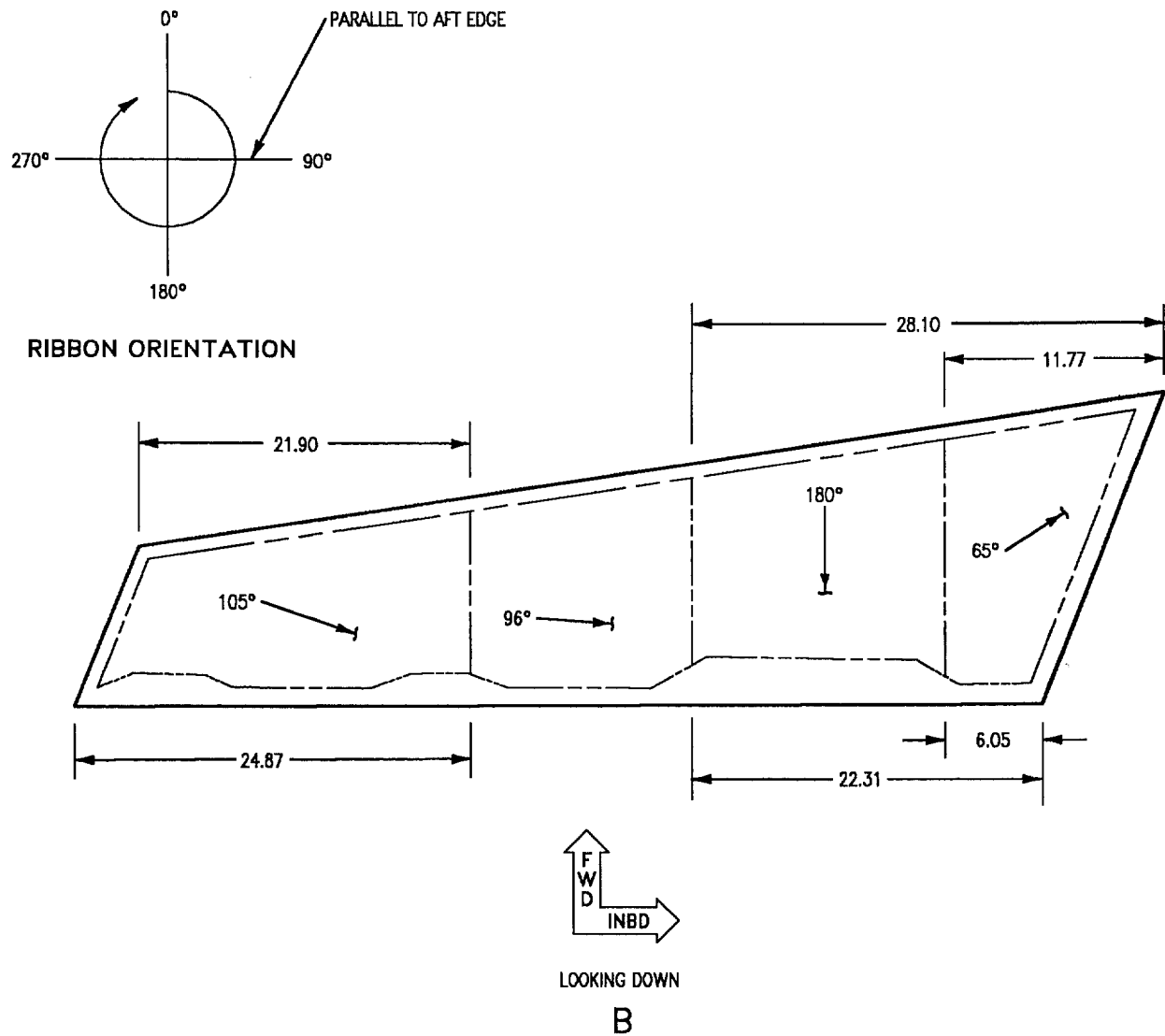


Figure 1. Material Index (Sheet 2)



























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2	 	Seal 74A190820-2003, -2004 74A190860-2001, -2002	0.063 Sheet 0.100 Sheet	7075-T6 Alclad 7075T76 Alclad
3		Skin 74A190813-2001, -2002	0.250 Plate	7075-T76 Alclad
4		Plate 74A190837-2005, -2006	0.090 Sheet	7075-T76 Alclad
5		Seal 74A190823-2011, -2012	0.080 Sheet	7075-T6 Alclad
6	 	Core 74A190634-2011, -2012 74A190634-2019, -2020		5056-H39 Al Aly
7	 	Plate 74A190843-2015, -2016 74A190843-2031, -2032	0.032 Sheet	7075-T6 Alclad
8	 	Core 74A190634-2013, -2014 74A190634-2021, -2022		5056-H39 Al Aly
9		Core 74A190816-2001, -2002		5056-H39 Al Aly
10		Core 74A190816-2003, -2004		5056-H39 Al Aly
11		Core 74A190816-2007, -2008		5056-H39 Al Aly
12		Spar 74A190816-2003, -2004	Machining	7175-T73652 Al Aly
13		Core 74A190816-2005, -2006		5056-H39 Al Aly
14		Core 74A190634-2015, -2016		5056-H39 Al Aly
15		Plate 74A190843-2017, -2018	0.032 Sheet	7075-T6 Alclad
16		Closure 74A190843-2009, -2010		
17		Nosepiece 74A190843-2011, -2012		
18		Skin 74A190843-2013, -2014		
19	 	Cap 74A190843-2019, -2020 74A190843-2035, -2036	0.016 Sheet	6061-T6 Al Aly

Figure 1. Material Index (Sheet 3)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
20	<div>11</div> <div>9</div>	Seal 74A190810-2007, -2008 74A190860-2003, -2004	0.071 Sheet 0.100 Sheet	6A1-4V Ti Anl
21		Skin 74A190814-2001, -2002	0.250 Plate	7075-T7651 Alclad
22	<div>12</div> <div>13</div> <div>14</div>	Seal 74A190824-2009, -2010 74A190824-2023, -2024 74A190824-2031, -2032	0.063 Sheet	7075-T6 Alclad
23	<div>12</div> <div>13</div> <div>14</div>	Seal 74A190824-2015, -2016 74A190824-2021, -2022 74A190824-2029, -2030	0.063 Sheet	7075-T6 Alclad
24		Plate 74A190837-2007, -2008	0.090 Sheet	7075-T76 Alclad
25		Fairing 74A190714-2005, -2006	0.060 Sheet	1
<p style="text-align: center;"><b>LEGEND</b></p> <p>1 Lexan F-60611 polycarbonate.</p> <p>2 3/16 hex cell 0.0010 nonperforated honeycomb.</p> <p>3 1/8 hex cell 0.0020 nonperforated honeycomb.</p> <p>4 1/8 hex cell 0.0010 nonperforated honeycomb.</p> <p>5 Fiberglass reinforced plastic laminate of various thickness.</p> <p>6 161353 THRU 161358.</p> <p>7 161359 THRU 161519.</p> <p>8 161353 THRU 161363.</p> <p>9 161364 THRU 161519.</p> <p>10 Polyurethane tape to protect leading edge finish. For application of polyurethane tape (A1-F18AC-SRM-500, WP027 00) Finish system.</p> <p>11 161353 THRU 161363 BEFORE F18 AFC 27. AFTER F18 AFC 27 PART IS REMOVED.</p> <p>12 161353 THRU 161519.</p> <p>13 161520 THRU 162414.</p> <p>14 162415 AND UP.</p>				

Figure 1. Material Index (Sheet 4)

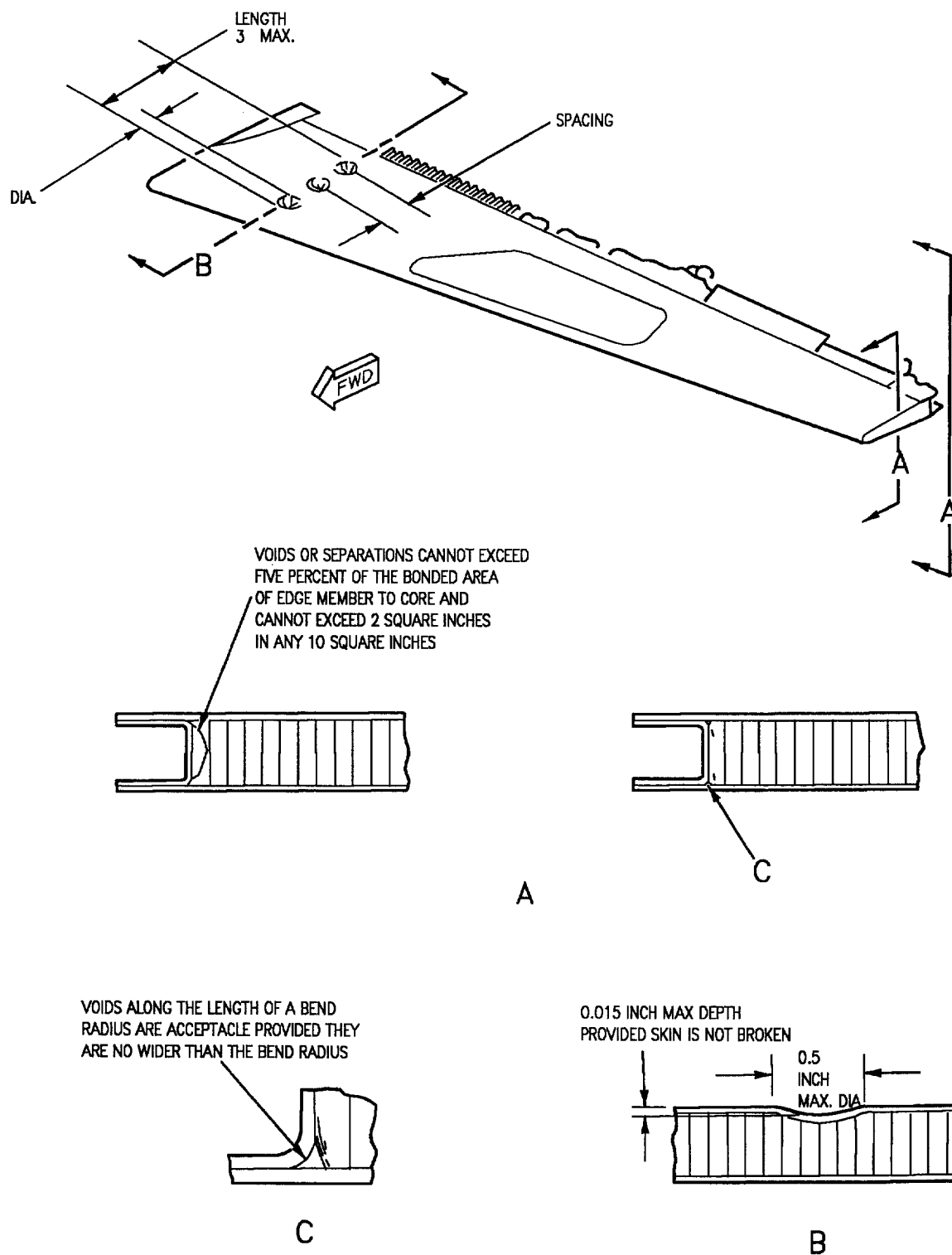
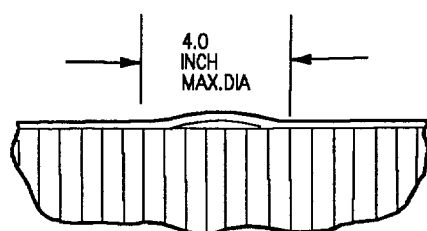
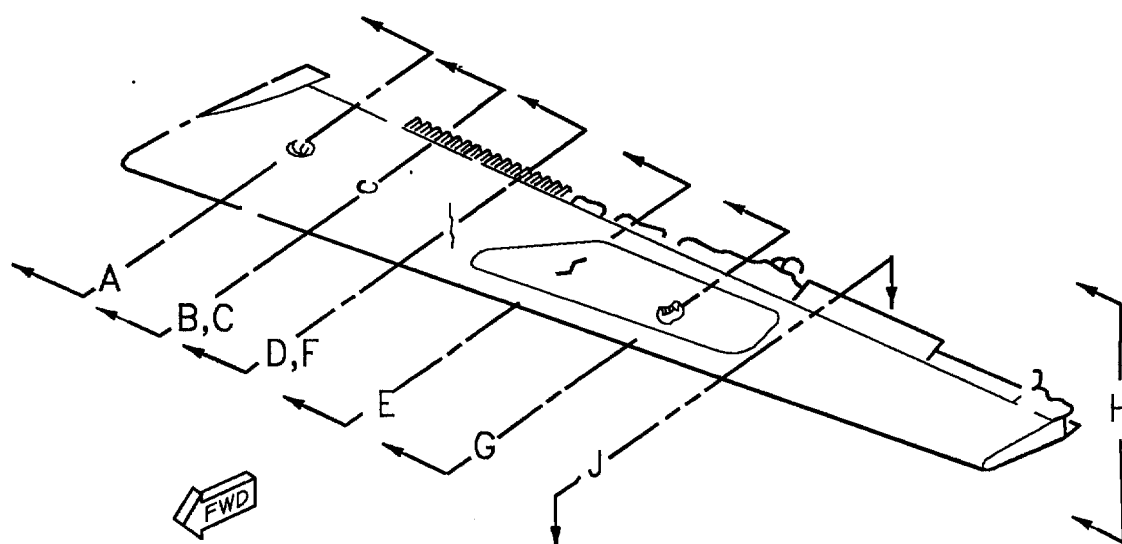
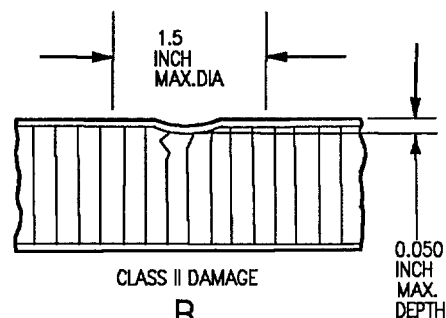


Figure 2. Negligible Damage, Aluminum Skin and Aluminum Honeycomb Core



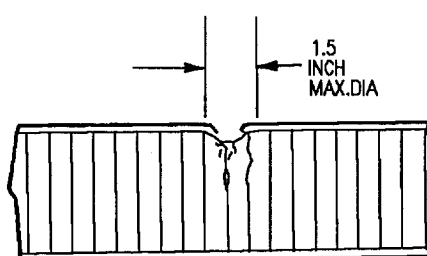
CLASS I DAMAGE

**A**  
VOID OR SEPARATION  
BETWEEN SKIN AND CORE



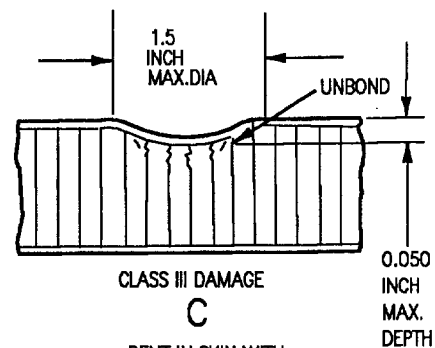
CLASS II DAMAGE

**B**  
DENTS IN SKIN



CLASS IV DAMAGE

**D**  
BULGE, SHARP DENT,  
CRACK OR PUNCTURE  
IN ONE SKIN CORE  
MAY OR MAY NOT  
BE DAMAGED



CLASS III DAMAGE

**C**  
DENT IN SKIN WITH  
CRUSHED CORE OR  
UNBOND

01500301

Figure 3. Repairable Damage Aluminum Honeycomb Core (Sheet 1)

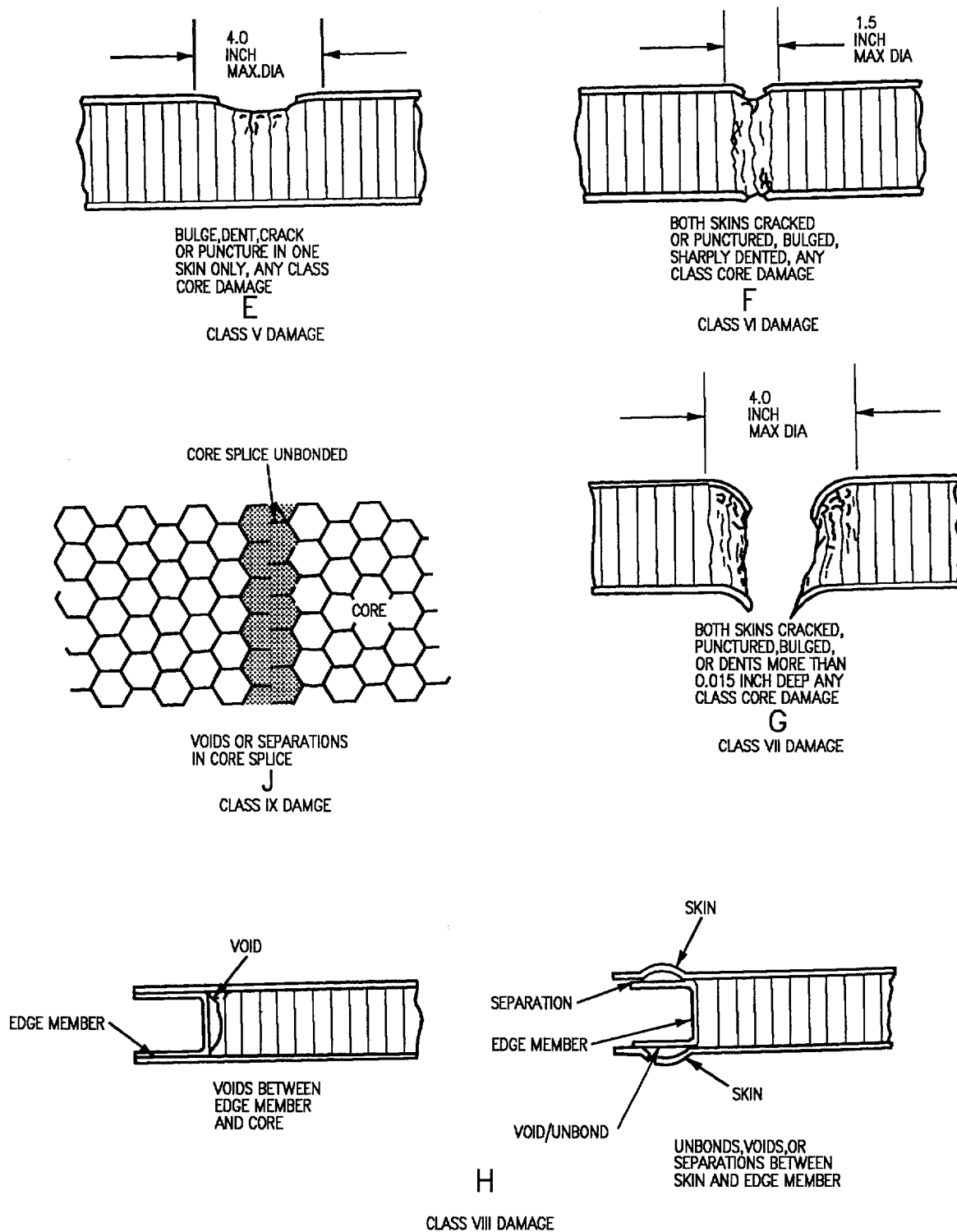


Figure 3. Repairable Damage Aluminum Honeycomb Core (Sheet 2)

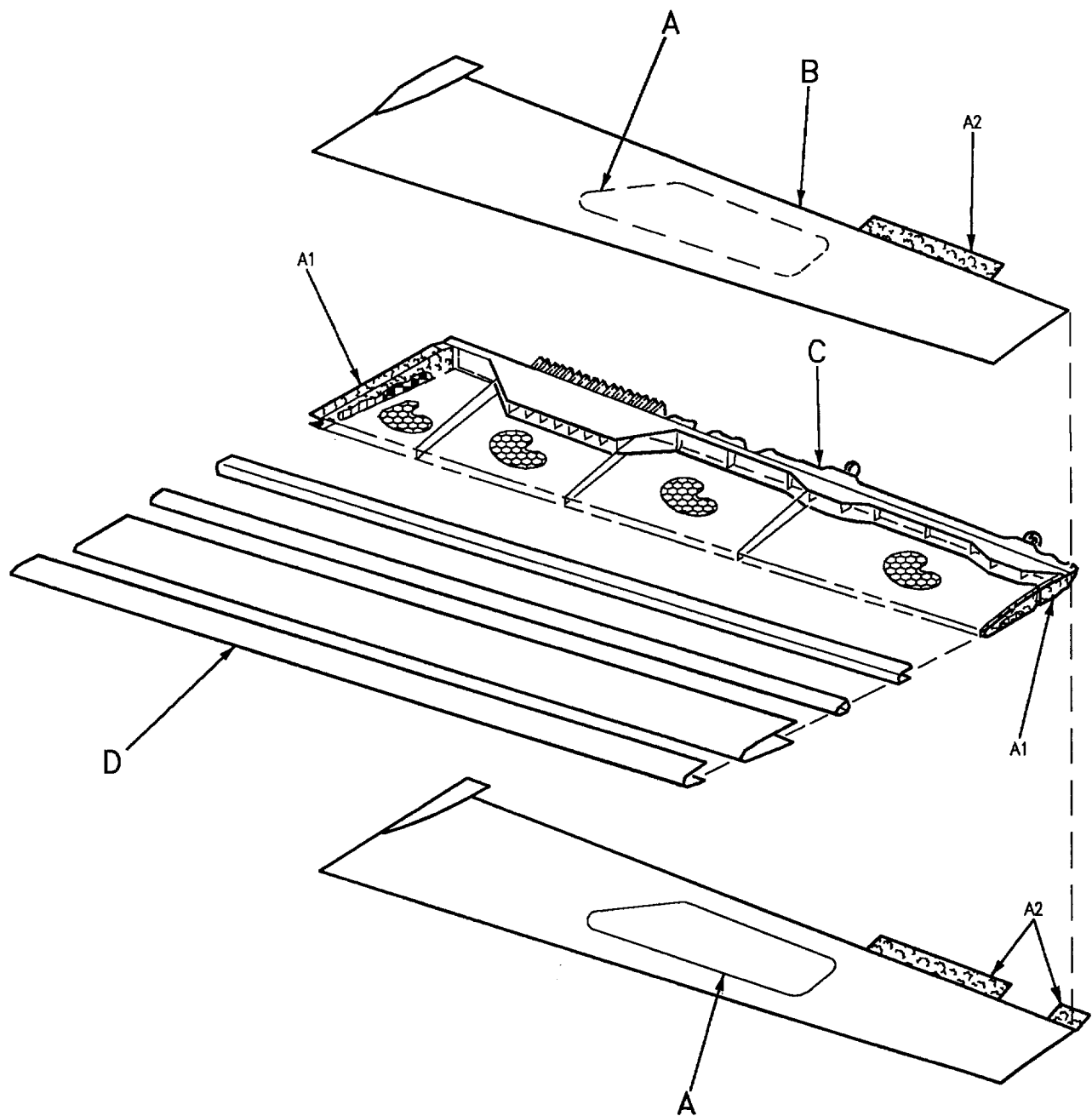
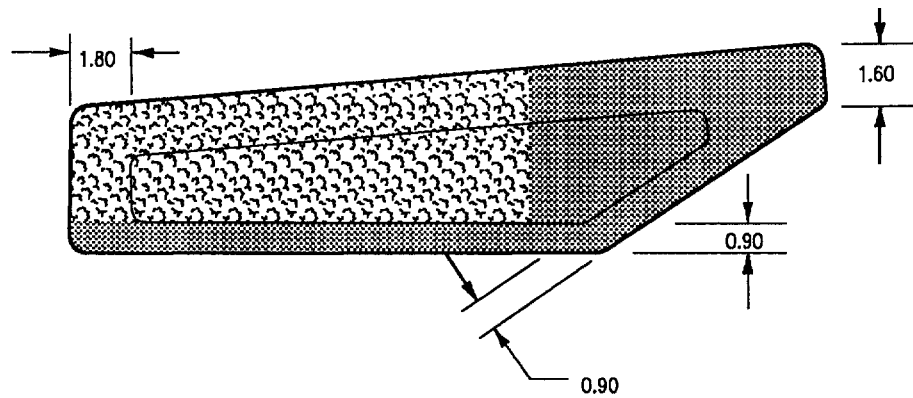
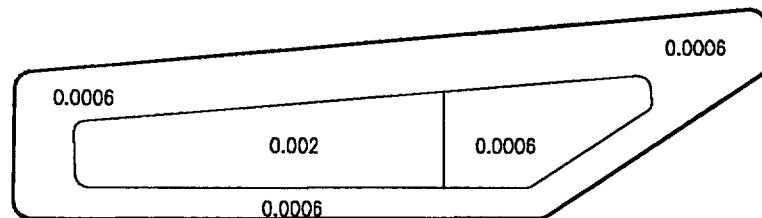


Figure 4. Repair Zones (Sheet 1)



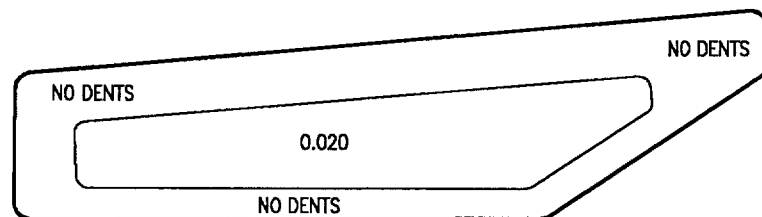
STRESS INTENSITY

A



NEGLIGIBLE SCRATCH DEPTH

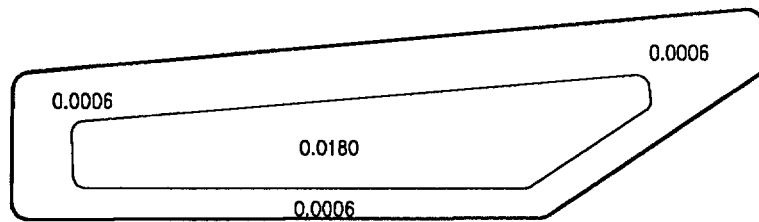
A



DENT ZONES AND ALLOWABLE DENTS

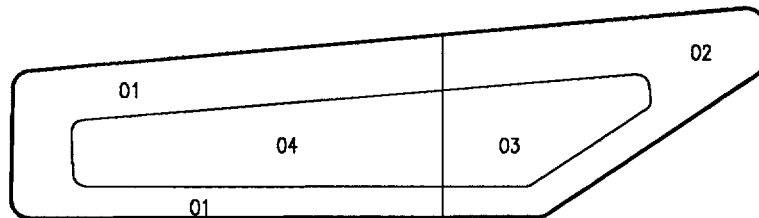
A

Figure 4. Repair Zones (Sheet 2)



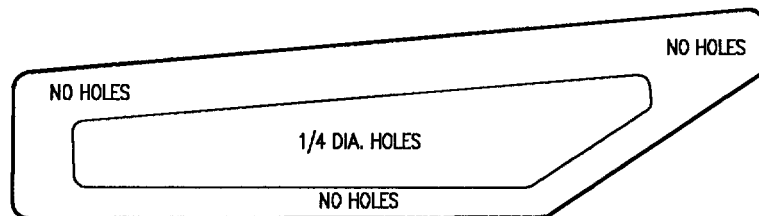
MINOR SCRATCH DEPTH

A



MINOR SCRATCH DEPTH, MINOR NICK, GOUGE AND CORROSION DEPTH

A

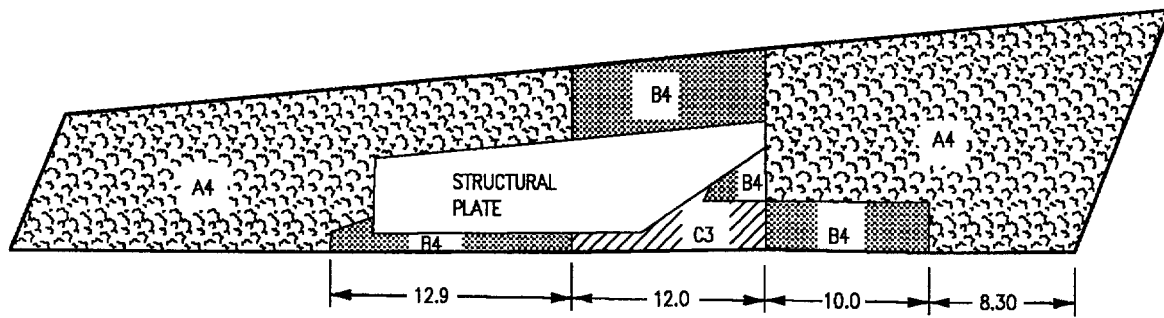


HOLES-DIAMETER

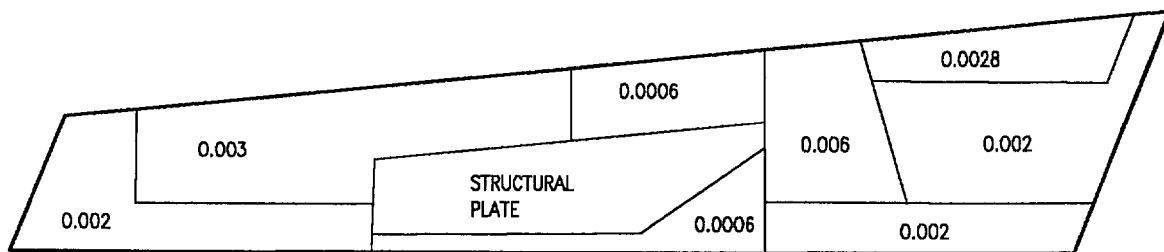
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Figure 4. Repair Zones (Sheet 3)

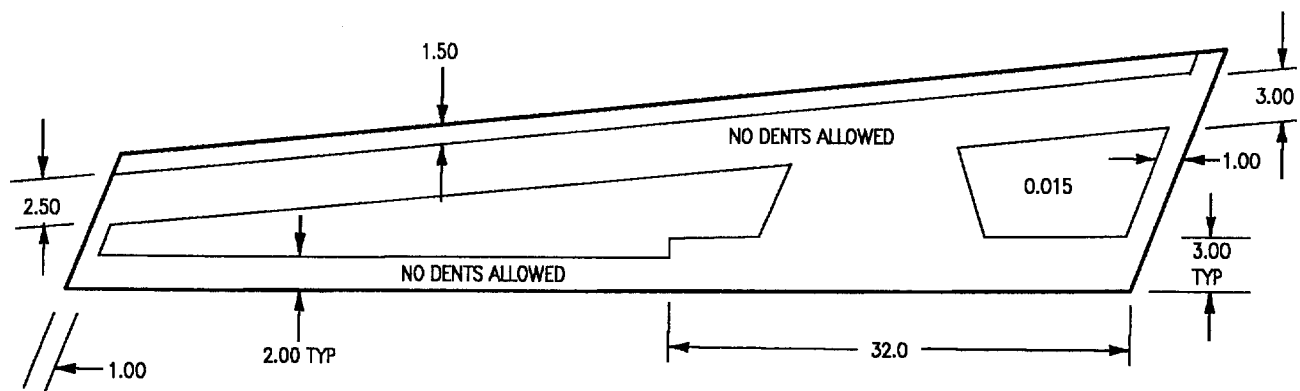




STRESS INTENSITY  
B

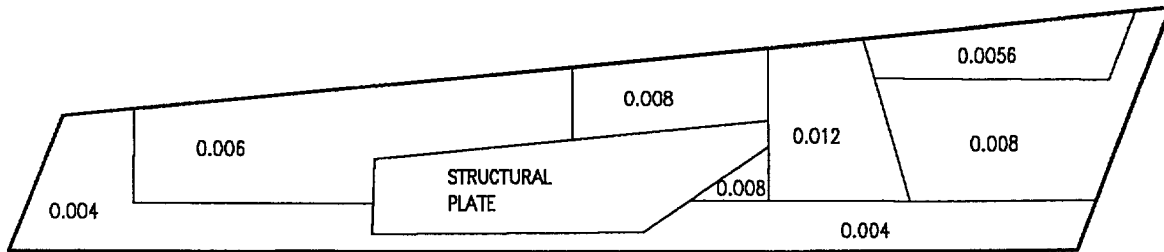


NEGLIGIBLE SCRATCH DEPTH  
B



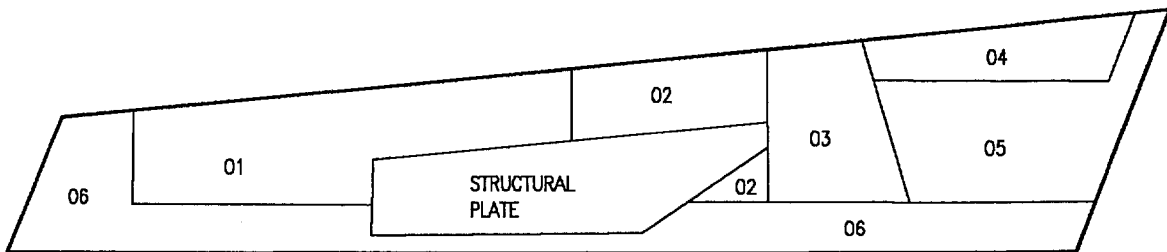
DENTS  
B

Figure 4. Repair Zones (Sheet 4)



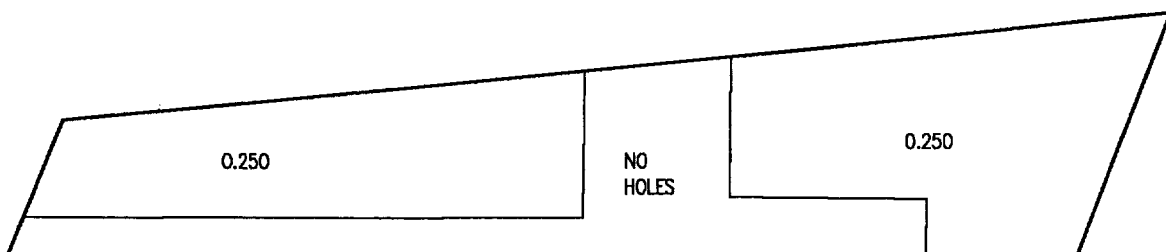
MINOR SCRATCH DEPTH

B



MINOR NICKS, GOUGES, AND CORROSION DEPTH

B



HOLES

B

Figure 4. Repair Zones (Sheet 5)

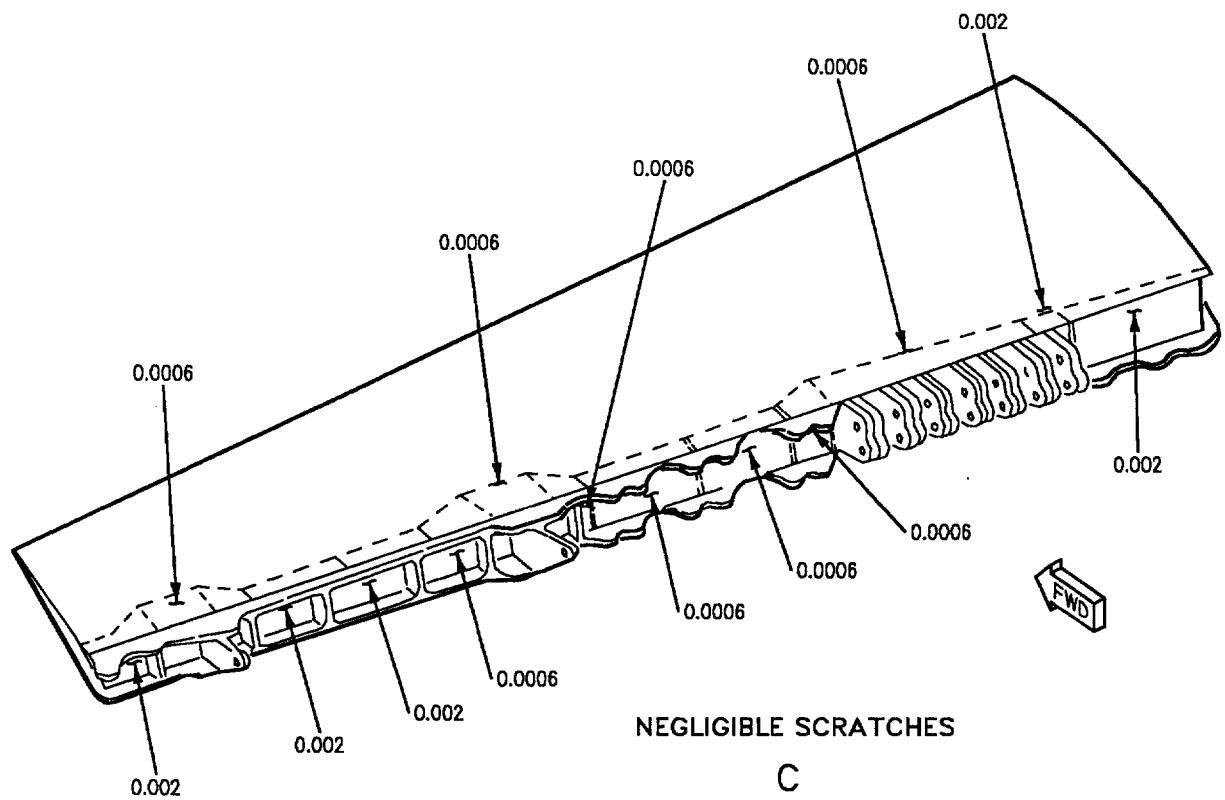
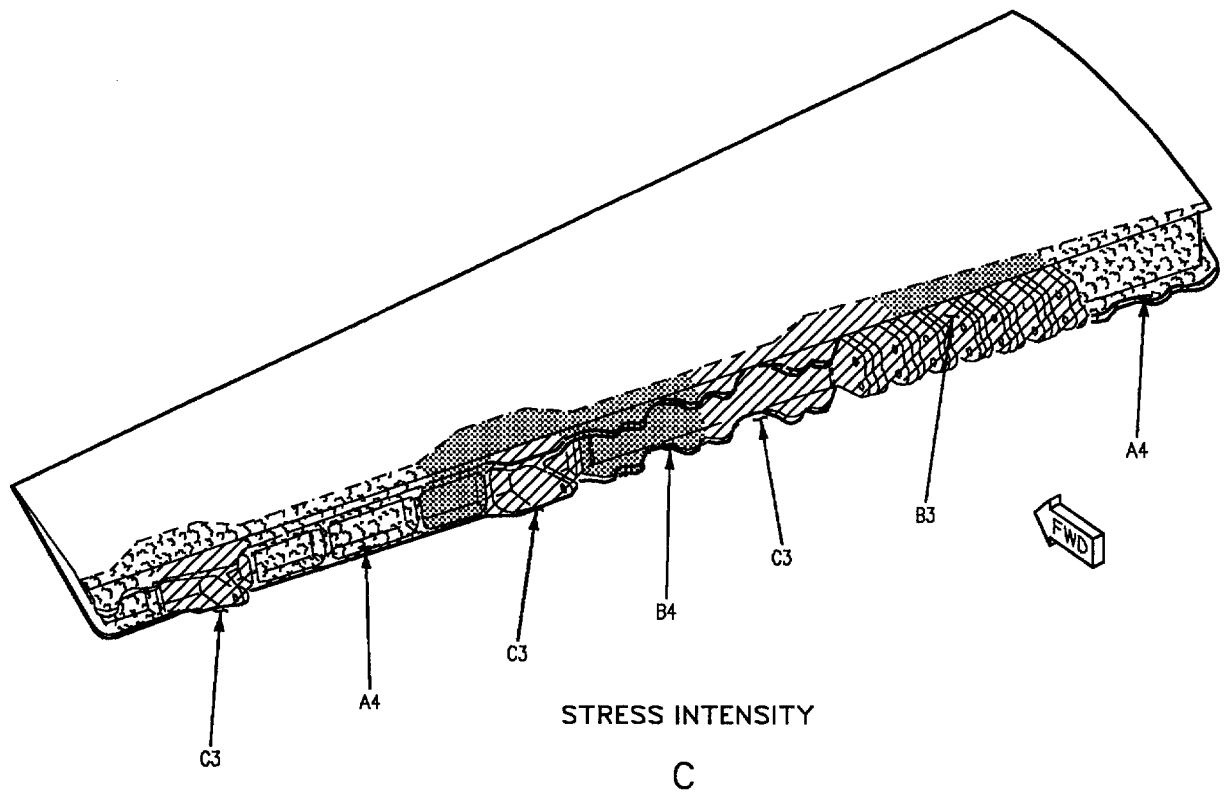


Figure 4. Repair Zones (Sheet 6)

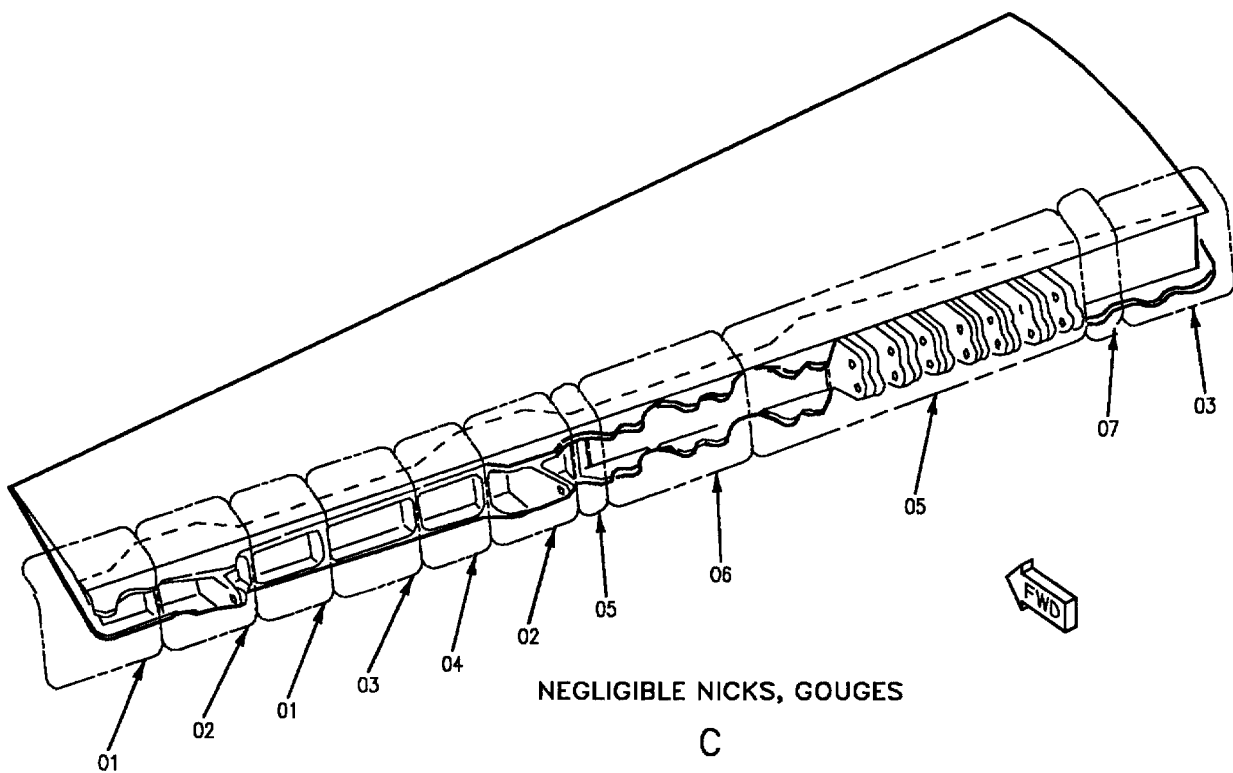
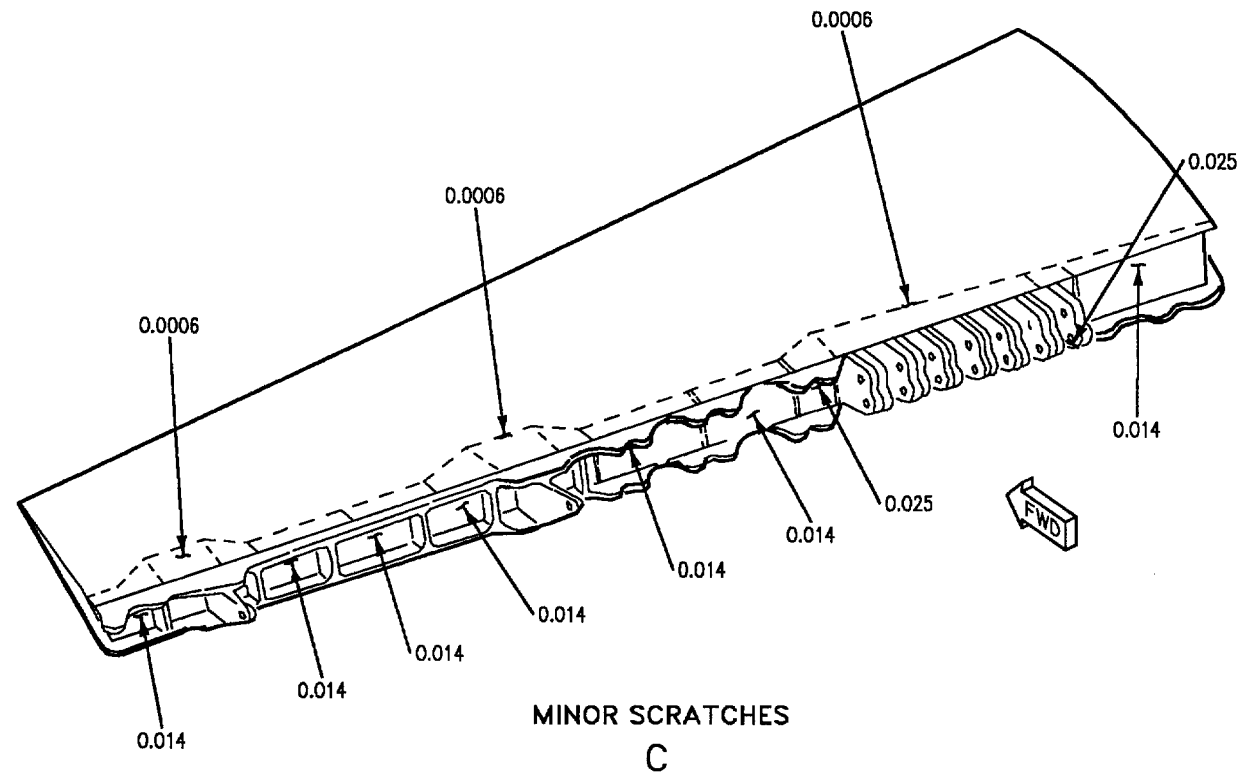
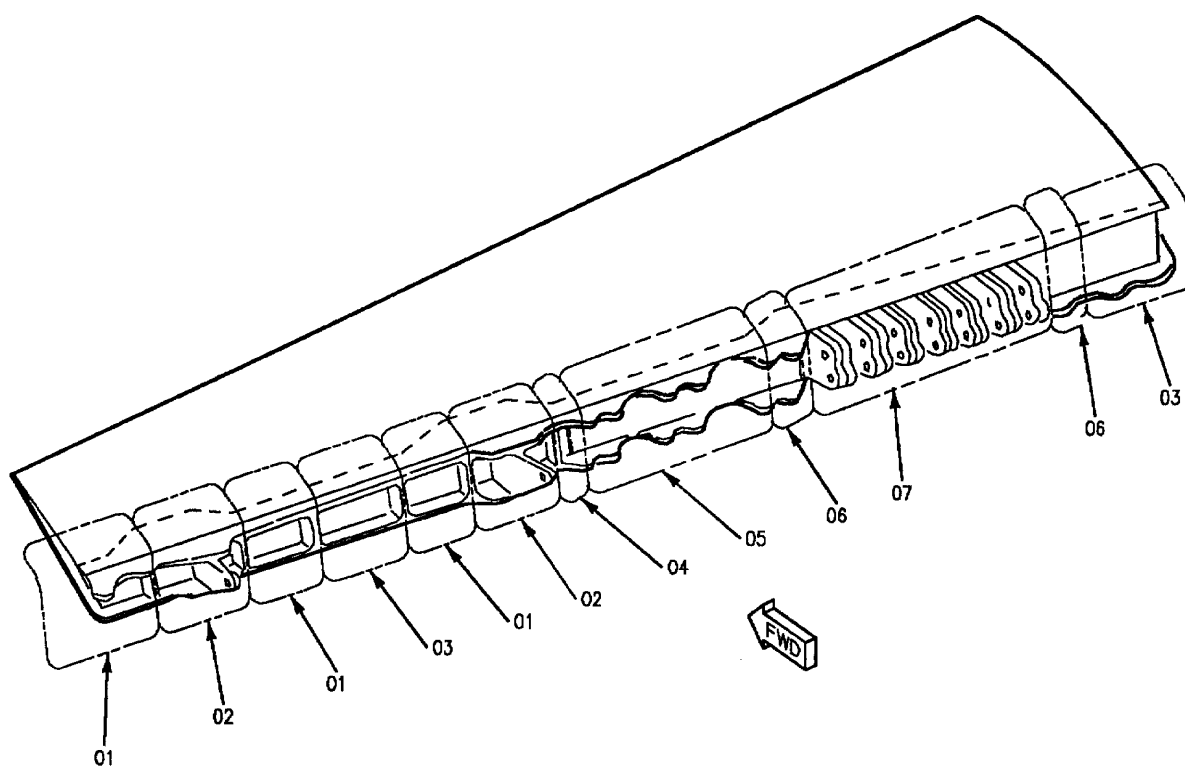
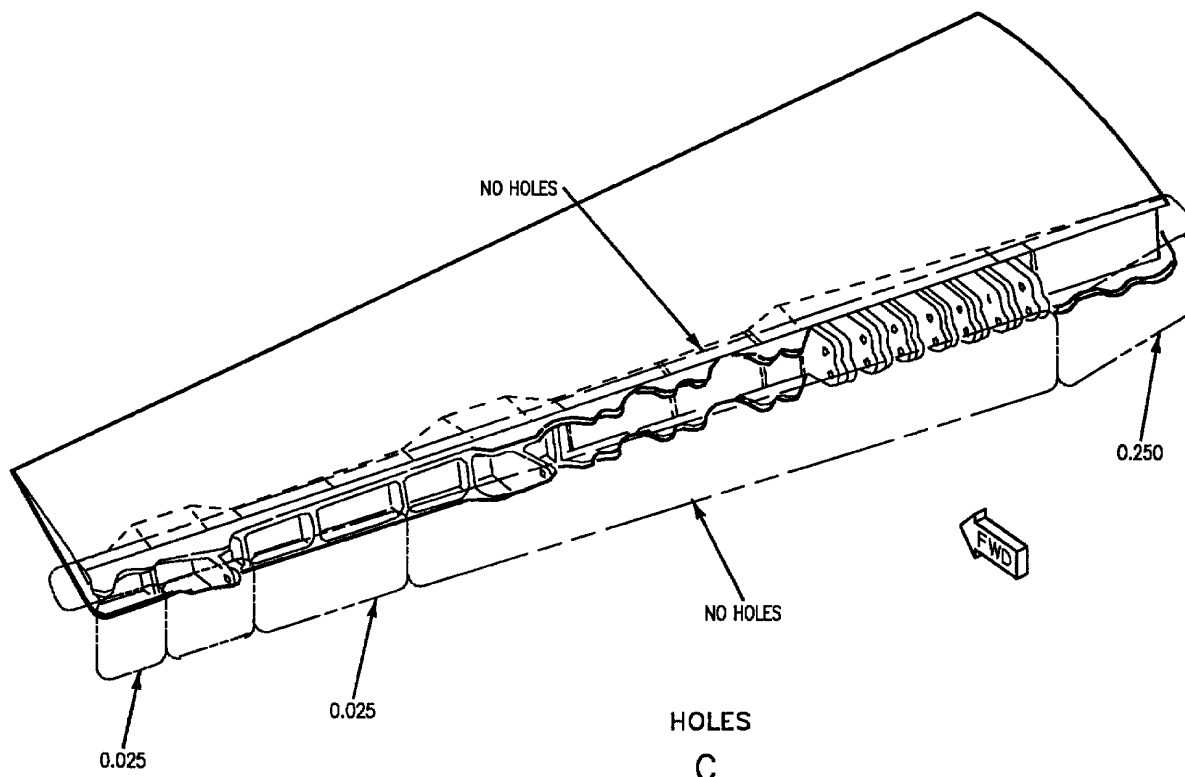


Figure 4. Repair Zones (Sheet 7)



MINOR NICKS, GOUGES, AND CORROSION DEPTH

C



HOLES

C

Figure 4. Repair Zones (Sheet 8)

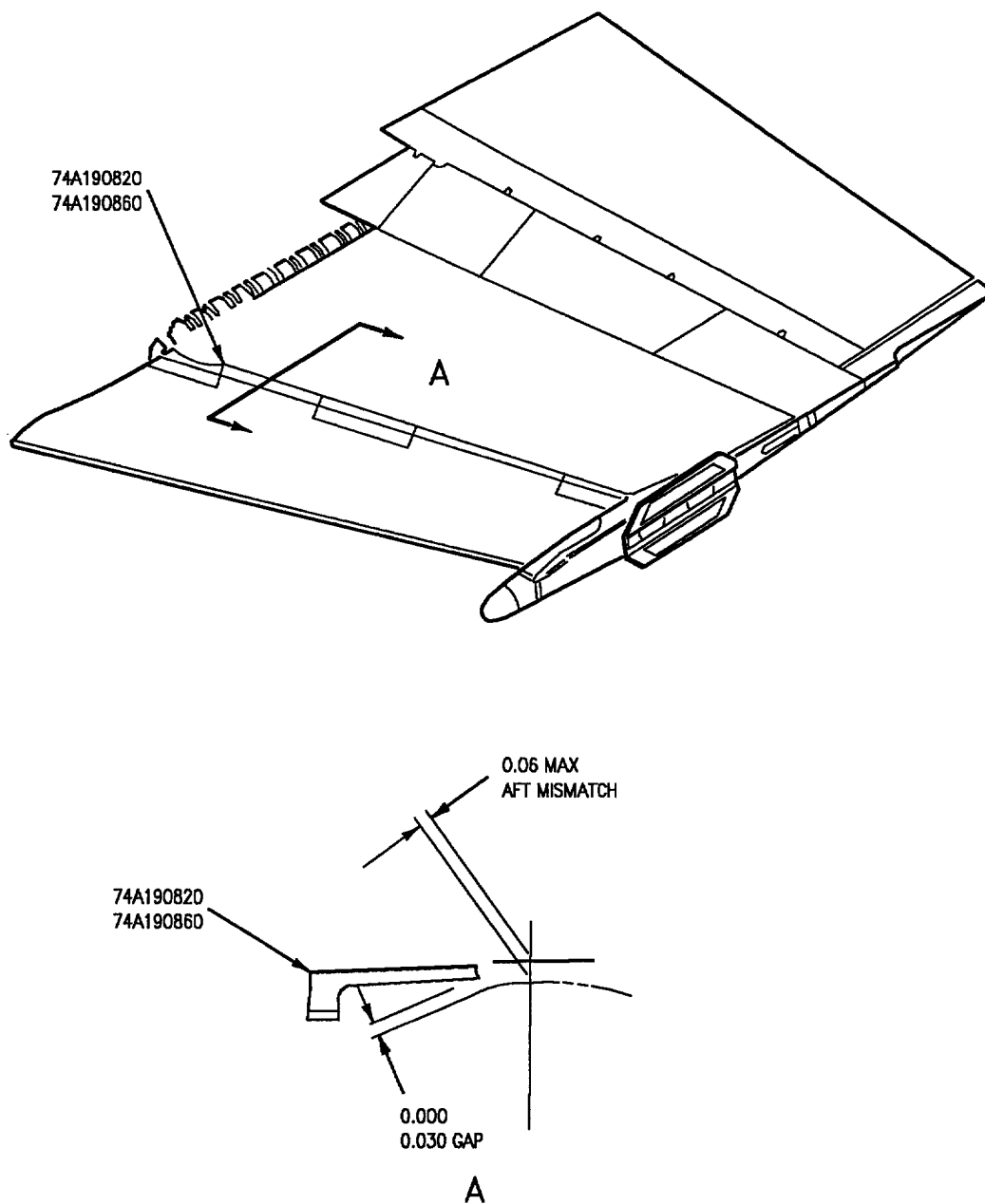


Figure 4. Repair Zones (Sheet 9)

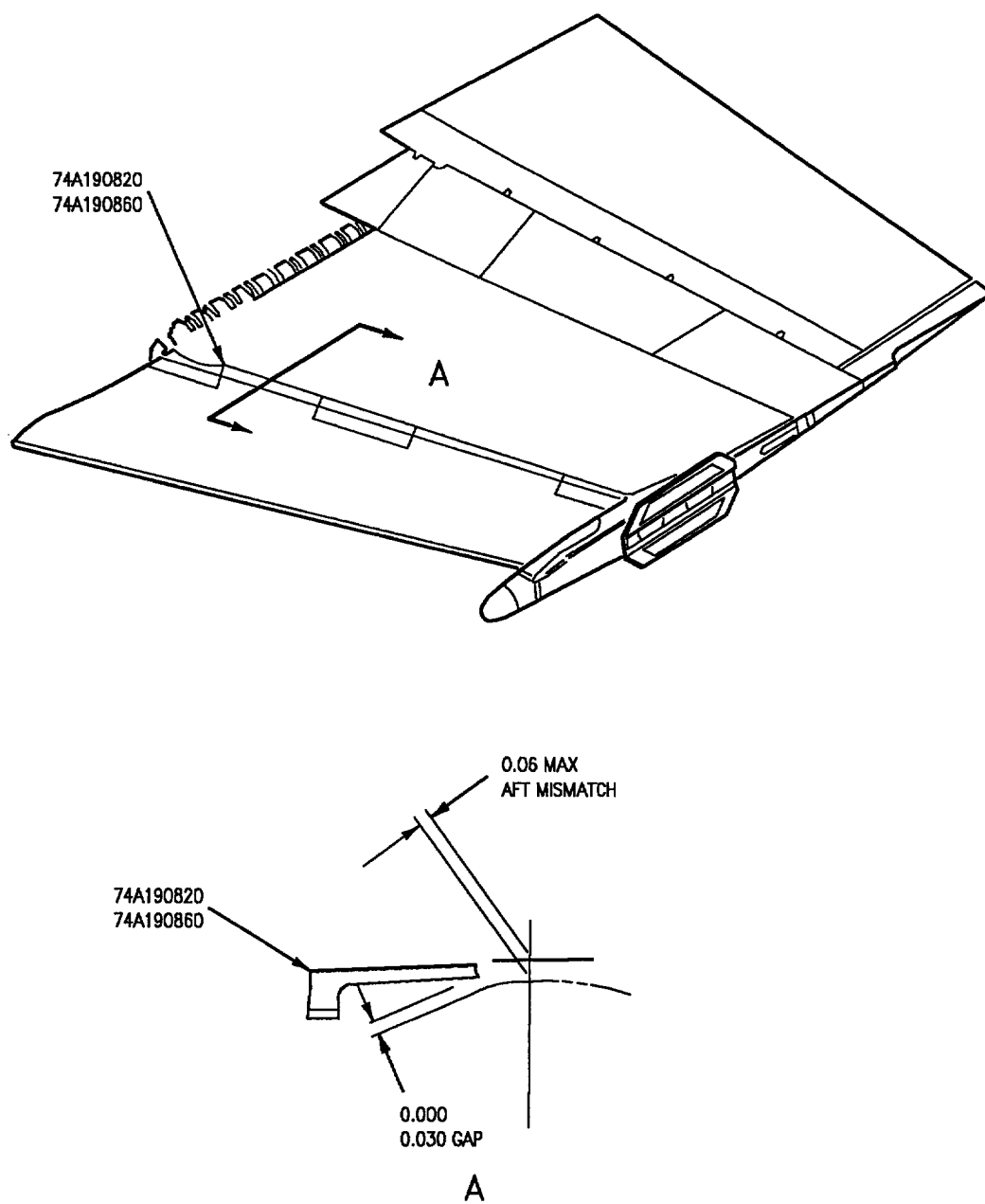


Figure 5. Seal (74A190820 and 74A190860) Gap and Mismatch (Sheet 1)

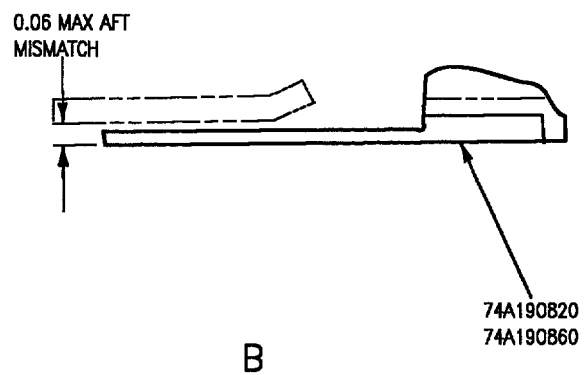
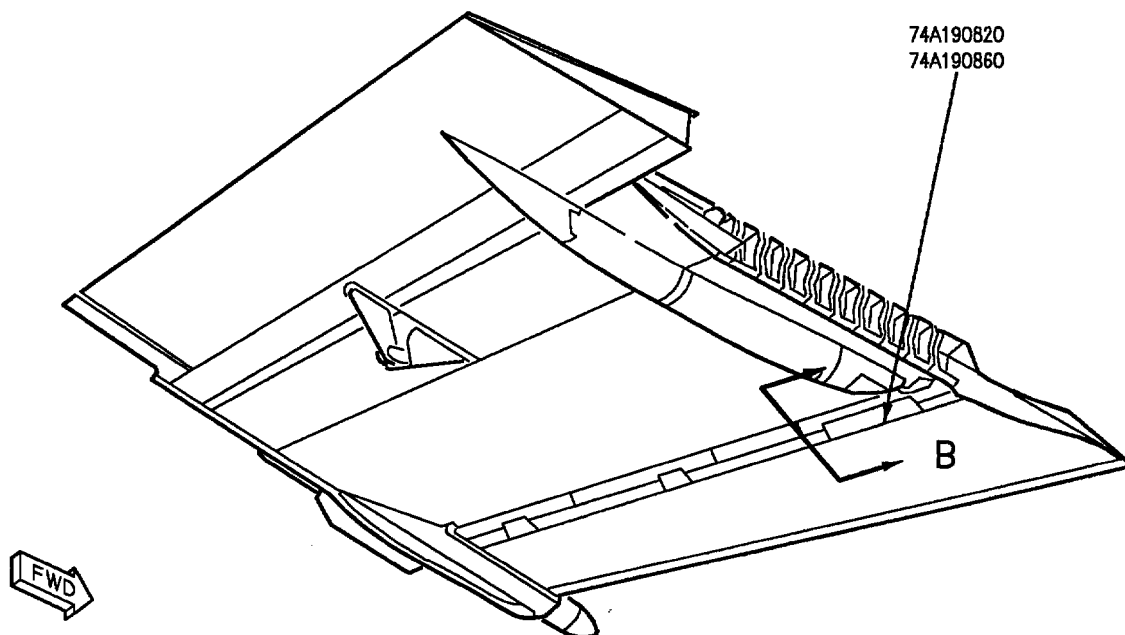


Figure 5. Seal (74A190820 and 74A190860) Gap and Mismatch (Sheet 2)



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ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## OUTBOARD LEADING EDGE FLAP,

PART NO. 74A190203

EFFECTIVITY: 161520 AND UP

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## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Fairing - Wing Fold, Effectivity: 161520 AND UP .....	WP016 03
Aircraft Corrosion Control .....	A1-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Nondestructive Inspection .....	A1-F18AC-SRM-300
Outboard Flap, Water in Honeycomb .....	WP019 00
Structure Repair, General Information .....	A1-F18AC-SRM-200
Introduction .....	WP002 00
Structure Repair, Typical Repair .....	A1-F18AC-SRM-250
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class X Damage Repair .....	WP005 00
Water Removal .....	WP005 00
Aluminum Patch Fabrication .....	WP006 01
Aluminum, Graphite Epoxy, or Titanium Patch Installation and Removal .....	WP007 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class I Damage Repair .....	WP022 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class II Damage Repair .....	WP023 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class III Damage Repair .....	WP024 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IV Damage Repair .....	WP025 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class V Damage Repair .....	WP026 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VI Damage Repair .....	WP027 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VII Damage Repair .....	WP028 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class VIII Damage Repair .....	WP029 00
Aluminum or Titanium Skin and Aluminum Honeycomb Core,	
Class IX Damage Repair .....	WP030 00
Aluminum Sheet, Free of Structure and Land Areas .....	WP031 00
Aluminum and Titanium Sheet Formed Structure .....	WP033 00
Aluminum Sheet, Edge Repair .....	WP034 00
Aluminum Sheet Repairs Across Structure and Lands .....	WP036 00
Blending .....	WP038 00
Aircraft Weapons Systems Cleaning and Corrosion Control .....	NAVAIR 01-1A-509

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Metal Skins and Structure .....	4
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Repairs .....	5
Rework of Seal (74A190860) .....	7

## Record of Applicable Technical Directives

None

## Support Equipment Required

None

## Materials Required

None

## 1. ALUMINUM SKIN AND HONEYCOMB CORE.

2. DAMAGE EVALUATION. See figures 1, 2, and 3. Damage is classified as negligible and repairable. Locating and determining size of damage by visual method is organizational maintenance. Locating and determining size of damage by NDI method is intermediate maintenance. Damage not listed or exceeding the limits listed below requires a depot engineering disposition.

3. Negligible Damage. See figures 1 and 2. Negligible damage is damage which does not exceed the type and limits listed below and may be allowed to exist as is.

a. Smooth dents free of sharp corners and abrasions.

(1) Depth is no more than 0.015 inch.

(2) Diameter is not more than 0.5 inch.

(3) No more than three dents occur in any 3 inch diameter circle.

(4) No more than six dents occurring in any 10 inch diameter circle.

(5) Dents occurring in a line and spaced closer than 1-1/2 dent diameter and does not exceed 3 inches in length.

b. Voids and separations in the adhesive along the length of the bend radius of structural part and of edge member to core to which the core is bonded.

(1) The width is not wider than the bend radius.

(2) Voids and separations do not exceed 2 square inches in any 10 square inches.

(3) Voids and separations do not exceed more than five percent of the total bonded area.

**4. Repairable Damage.** See figures 1 and 3. Repairable damage is damage that can be permanently repaired with no adverse affect on structural integrity, flight characteristics, or safety of aircraft.

**5. Void or Unbonds Between Skin and Core, Class I Damage.** See figure 3, section A. Class I damage is damage which does not exceed the limits listed below:

a. Diameter is 4 inches or less.

b. Area of damage does not exceed four percent of bonded area.

**6. Dents Without Honeycomb Core Damage, Class II Damage.** See figure 3, section B. Class II damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inches.

c. No crushed core or unbond.

**7. Dents With Honeycomb Core Damage, Class III Damage.** See figure 3, section C. Class III damage is damage which does not exceed the limits listed below:

a. Diameter is 0.50 to 1.5 inches.

b. Depth is 0.015 to 0.050 inch.

c. May have crushed core or unbonds.

**8. Damage Less Than 1.5 Inches Length or Diameter to One Skin, Class IV Damage.** See figure 3, Section D. Class IV damage is damage which does not exceed the limits listed below:

a. Damage is one skin only.

b. Length or diameter does not exceed 1.5 inches.

c. Core may or may not be damaged.

**9. Damage More Than 1.5 Inches Length or Diameter, up to 4 Inches Maximum to One Skin. Class V Damage.** See figure 3, section E. Class V damage is damage which does not exceed the limits listed below:

a. Damage to one skin only.

b. Length or diameter is 1.5 to 4.0 inches.

c. Core damage of any level.

**10. Damage Less Than 1.5 Inches Length or Diameter, to Both Skins, Class VI Damage.** See figure 3, section F. Class VI damage is damage which does not exceed the limits listed below:

a. Damage may be to both skins.

b. Length or diameter does not exceed 1.5 inches in length.

c. Core damage of any level.

**11. Damage More Than 1.5 Inches Length or Diameter, up to 4.0 Inches Maximum to Both Skins, Class VII Damage.** Class VII damage includes cracks, bulges, punctures and sharp dents. See figure 3, section G. Class VII damage is damage which does not exceed the limits listed below:

a. Damage is to both skins.

b. Crack is 1.5 to 4.0 inches in length.

c. Bulges, punctures, and dents can be enclosed in a circle not smaller than 1.5 inch diameter, and not larger than 4 inch diameter circle.

d. Core damage of any kind exists.

**12. Structure to Skin or Honeycomb Core, Void or Unbond, Class VIII Damage.** See figure 3, section H. Class VIII damage is damage which does not exceed the limits listed below:

a. Between skin and edge member, not extending into core.

b. Damage may or may not be open to the edge.

c. Voids between edge member and core.

**13. Honeycomb Core Splice, Void or Unbond, Class IX Damage.** See figure 3, section J. Class IX

damage is damage that occurs at the honeycomb core splice line.

a. Voids and separation in the honeycomb splice joints.

b. Unbonds of core splice.

14. Water in Honeycomb Core, Class X Damage. Inspect for water in honeycomb core (A1-F18AC-SRM-300, WP019 00). Class X damage is water trapped in honeycomb core.

15. **REPAIRS.** Blend scratches, nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If after blending, the damage limits of table 2 are exceeded, repair damage per Class IV or V damage. Classes I, II, III, IV, VI, VIII, IX, X are organizational maintenance. Classes V and VII are intermediate maintenance. Repair damages by the procedures referenced below:

### WARNING

Installation of an overweight repair could cause failure of the leading edge flap because of flutter, resulting in loss of life or injury. Engineering approval of repairs on the leading edge flap is required.

a. Repair class I damage and install patch (A1-F18AC-SRM-250, WP022 00).

b. Repair class II damage (A1-F18AC-SRM-250, WP023 00).

c. Repair class III damage and install patch (A1-F18AC-SRM-250, WP024 00).

d. Repair class IV damage and install patch (A1-F18AC-SRM-250, WP025 00).

e. Repair class V damage and install patch (A1-F18AC-SRM-250, WP026 00).

f. Repair class VI damage and install patch (A1-F18AC-SRM-250, WP027 00).

g. Repair class VII damage and install patch (A1-F18AC-SRM-250, WP028 00).

h. Repair class VIII damage (A1-F18AC-SRM-250, WP029 00).

i. Repair class IX damage and install patch (A1-F18AC-SRM-250, WP030 00).

j. Repair class X damage (A1-F18AC-SRM-250, WP005 00).

## 16. FAIRING, WING FOLD.

17. For repair or replacement (WP016 03).

## 18. METAL SKINS AND STRUCTURE.

19. **DAMAGE EVALUATION.** See figures 1 and 4. Damage is classified as negligible and repairable. The types of materials used are shown on figure 1. Repair zones are shown on figure 4. Allowable damage limits within repair zones are listed in tables 1 and 2. Locating and determining size of damage by visual method is organizational maintenance. Damage not listed or exceeding the limits below requires a depot engineering disposition.

20. **Negligible Damage.** Negligible damage is damage that may be allowed to exist as is. However, preventive maintenance, for temporary corrosion arrestment, should be done to scratches (NAVAIR 01-1A-509). The types and limits of damage are listed below and in table 1. The figure and index numbers in table 1 coincide with the figure and index numbers in the material index.

a. Scratches are not allowed within one diameter from the edge of any hole.

b. Smooth dents only, effective diameter at least 20 times the depth.

21. **Repairable Damage.** The types and limits of damage are listed below and in table 2. The figure and index numbers in table 2 coincide with figure and index numbers in the material index, figure 1.

### NOTE

The limits in table 2 apply after blending the damage.

a. Scratches.

(1) Any scratches within one diameter of any hole must be blended out. Minimum blend out is one diameter from edge of any hole.

(2) Scratches to be blended out with diameter, or width, at surface at least 20 times the depth.

b. Nicks, gouges, and corrosion to be blended out with diameter, or width, at surface at least 20 times the depth.

c. Cracks. All cracks must be repaired.

d. Holes.

(1) Damage in areas free of structure and lands must have edge of cleanup hole at least eight repair fasteners diameters from any land, internal structure, or existing row of fasteners.

(2) Damage to lands, over structure, only one repair per land.

e. Dents exceeding the limits in table 1 must be repaired.

22. **REPAIRS.** Types of repairs are temporary, one-time flight, permanent, critical area, alternate, and typical. Repair type definitions are in structure repair terms (A1-F18AC-SRM-200, WP002 00).

### WARNING

Installation of an overweight repair could cause failure of the leading edge flap because of flutter, resulting in loss of life or injury. Engineering approval of repairs on the leading edge flap is required.

#### 23. Permanent Repairs.

24. Scratches, Nicks, Gouges, or Corrosion. Blend nicks, gouges, or corrosion (A1-F18AC-SRM-250, WP038 00). If blending and the damage limits of table 2 are exceeded, repair aluminum sheet. Refinished blended areas on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

a. Scratches - make crack or edge repair.

b. Nicks, gouges, or corrosion - make hole or edge repair.

#### 25. Cracks.

a. In repair zones A1, A2, and A4, repair cracks free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Stop drill ends of cracks in zones A1 and A2. Cut out damage in smallest diameter circle in zone A4.

(2) In repair zones A1 and A2, install a lap patch.

(3) In repair zone A4, install a type two flush or lap patch.

(4) Refinish repaired area on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

b. In repair zones B3 and B4, repair cracks free of structure or land areas in aluminum sheet (0.050 thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair cracks across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

d. In repair zones A1, A2, and A4, repair cracks to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

## 26. Holes.

a. In repair zones A1, A2, or A4, repair holes free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zones A1 and A2, install type one flush or lap patch. In repair zone A4 install a type two flush or lap patch.

(3) Refinish repaired area on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

b. In repair zones B3 and B4, repair holes free of structure or land areas in aluminum sheet (0.050 thickness or less).

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair holes across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

d. In repair zones A1, A2, and A4, repair holes to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

27. **Edge.** In repair zones A1, A2, or A4, repair edge damage in aluminum sheet (A1-F18AC-SRM-250, WP034 00).

a. Cut out damage.

b. Select repair patch (A1-F18AC-SRM-250, WP034 00).

(1) Corner Damage to Lands.

(2) Corner Damage to Lands and Bays.

(3) Edge Damage to Lands.

(4) Edge Damage to Lands and Bays.

(5) Full Width Damage to End.

c. Refinish repaired area on moldline skin (A1-F18AC-SRM-500, WP027 00) and for internal structure (NAVAIR 01-1A-509).

## 28. Dents.

a. In repair zones A1, A2, or A4, repair dents free of structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP031 00).

(1) Cut out damage.

(2) In repair zones A1 and A2, install a type one flush or lap patch. In repair zone A4 install a type two flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

b. In repair zones B3 and B4, repair dents free of structure or land areas in aluminum sheet 0.050 thickness or less.

(1) Cut out damage in the smallest diameter circle.

(2) Fabricate patch (A1-F18AC-SRM-250, WP006 01).

(3) Install patch using FM300 adhesive (A1-F18AC-SRM-250, WP007 00).

(4) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

c. In repair zones A1, A2, or A4, repair dents across structure or land areas in aluminum sheet (A1-F18AC-SRM-250, WP036 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, make repairs.

(a) Damage to Bay Requiring Repair Across Land; install flush or lap patch.

(b) Damage to Bay Requiring Repair Across Land and Edge of Part; install flush or lap patch.

(c) Damage to Land or Land and Bay; install flush or lap patch.

(3) Refinish repaired area (A1-F18AC-SRM-500, WP027 00).

d. In repair zones A1, A2, and A4, repair dents to aluminum formed structure (A1-F18AC-SRM-250, WP033 00).

(1) Cut out damage.

(2) In repair zones A1, A2, and A4, install repair one through six. Select the repair that can be adapted to the damaged part.

(3) Refinish repaired area (NAVAIR 01-1A-509).

29. **REWORK OF SEAL (74A190860).** See figure 5.

a. Trim seal to allowable gap, views A and B.

b. Refinish trimmed edge (A1-F18AC-SRM-500, WP027 00).

**Table 1. Negligible Damage Limits**











Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1  (3) and (32)	Skin Zone C3	0.250		0.0006	100%		
	Zone B4	0.250		0.0006	100%		
	Zone A4	0.250		0.0006	100%		
Fig 1 (4)	Seal Zone A2	0.080	0.008	0.0006	100%	0.020	10%
Fig 1 (6)	Plate Zone A1	0.032	0.004	0.0006	100%	0.016	N/A

Table 1. Negligible Damage Limits (Continued)






































































Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
Fig 1 (15)	Spar						
	Zone C3						N/A
	Zone 02			0.0006			N/A
	Zone 05			0.0006			N/A
	Zone 06			0.0006			N/A
	Zone B4						N/A
	Zone 02			0.0006			N/A
	Zone 04			0.0006			N/A
	Zone 05			0.0006			N/A
	Zone 06			0.0006			N/A
	Zone B3						N/A
	Zone 05			0.0006			N/A
	Zone A4						N/A
	Zone 01			0.007			N/A
	Zone 02			0.0006			N/A
	Zone 03			0.007			N/A
Fig 1 (23)	Rib Zone A1	0.032	0.004	0.006	100%	0.016	N/A
Fig 1 (24)	Beam						
	Zone B4 Zone A4	0.040 0.040	0.0006 0.0006	0.0006 0.0006	100% 100%	 	N/A N/A
Fig 1 (25)	Plate Zone A1	0.032	0.002	0.002	100%	0.015	N/A
Fig 1 (27) 	Skin						
	Zone B4 Zone A4	0.063 0.063	0.0006 0.0006	0.0006 0.0006	100% 100%	0.030 0.030	 
Fig 1 (29) and (30)	Seal Zone A2	0.063	0.008	0.0006	100%	0.020	10%
Fig 1 (34)	Plate Zone A1	0.032	0.002	0.002	100%	0.015	N/A



Table 1. Negligible Damage Limits (Continued)

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Scratch Depth	Nicks Gouges		Dents Depth	Rivet Tilt
				Depth	Area		
NOTES							
<div><div>1</div>Figure 4, detail A.</div> <div><div>2</div>Various thickness.</div> <div><div>3</div>Figure 4, detail B.</div> <div><div>4</div>None allowed.</div> <div><div>5</div>0.60 square inch combined in one zone.</div> <div><div>6</div>1 square inch combined in one zone.</div> <div><div>7</div>2 square inches combined in one zone.</div> <div><div>8</div>2.2 square inches combined in one zone.</div> <div><div>9</div>1.5 square inches combined in one zone.</div> <div><div>10</div>Remove segment of damaged or undamaged polyurethane tape to determine allowable damage limits to assembly.</div>							

Table 2. Repairable Damage Limits After Blending

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 21 (3) and (32) 13 13 13 13 13 13 13 13 13 13 13	Skin Zone C3 Zone 06 Zone B4 Zone 02 Zone 06 Zone A4 Zone 01 Zone 03 Zone 04 Zone 05 Zone 06	0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250	20 20 20 20 20 20 20 20 20 20 20 20	1 1 1 1 1 1 1 1 1 1 1 1	1 0.004 1 0.008 0.004 1 0.006 0.012 0.0056 0.008 0.004	1 11 1 8 11 1 9 10 11 12 11	1 0.004 1 0.008 0.004 1 0.006 0.012 0.0056 0.008 0.004	1 11 1 8 11 1 9 10 11 12 11
Fig 1 (4) 3	Seal Zone A2	0.080	20	0.013	0.013	2	0.013	2
Fig 1 (6) 3	Plate Zone A2	0.032	20	0.007	0.007	4	0.007	4

Table 2. Repairable Damage Limits After Blending (Continued)

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
Fig 1 (15)	Spar							
17	Zone C3	5	20	6	6	6	6	6
17	Zone 02	5	20	6	0.0006	14	0.0006	14
17	Zone 05	5	20	6	0.014	15	0.014	15
17	Zone 06	5	20	6	0.025	16	0.025	16
17	Zone 07	5	20	6	0.0006	16	0.0006	16
17	Zone B4	5	20	6	6	6	6	6
17	Zone 01	5	20	6	0.014	7	0.014	7
17	Zone 02	5	20	6	0.0006	14	0.0006	14
17	Zone 04	5	20	6	0.014	16	0.014	16
17	Zone 05	5	20	6	0.014	15	0.014	15
17	Zone B3	5	20	6	6	6	6	6
17	Zone 07	5	20	6	0.0006	16	0.0006	16
17	Zone A4	5	20	6	6	6	6	6
17	Zone 01	5	20	6	0.014	7	0.014	7
17	Zone 02	5	20	6	0.0006	14	0.0006	14
17	Zone 03	5	20	6	0.014	4	0.014	4
Fig 1 (23)	Rib							
3	Zone A1	0.032	20	0.007	0.007	4	0.007	4
Fig 1 (24)	Beam							
19	Zone B4	0.040	0.0006	0.004	0.004	18	0.004	18
19	Zone A4	0.040	0.004	0.008	0.008	18	0.008	18
Fig 1 (25)	Plate							
19	Zone A1	0.032	0.003	0.006	0.006	100%	0.006	100%
Fig 1 (26)	Skin							
21	Zone B4	0.063	0.0006	0.006	0.006	18	0.006	18
19	Zone A4	0.063	0.006	0.012	0.012	18	0.012	18
Fig 1 (29)	Seal							
3	Zone A2	0.063	20	0.013	0.013	2	0.013	24
Fig 1 (34)	Plate							
19	Zone A1	0.032	0.003	0.006	0.006	100%	0.006	100%

**Table 2. Repairable Damage Limits After Blending (Continued)**

Fig No. Idx No.	Nomen/ Repair Zone	Thickness	Edge Nicks Depth	Scratch Depth	Nicks Gouges		Corrosion	
					Depth	Area	Depth	Area
NOTES								
1	Figure 4, detail A.							
2	2.4 square inch combined in one zone.							
3	0.250 inch diameter hole, hole must be 0.50 from any edge, 0.75 from any fastener.							
4	4 square inches combined in one zone.							
5	Various thickness.							
6	Figure 4, detail B.							
7	3 square inches combined in one zone.							
8	7 square inches combined in one zone.							
9	25 square inches combined in one zone.							
10	15 square inches combined in one zone.							
11	7.5 square inches combined in one zone.							
12	18 square inches combined in one zone.							
13	Figure 4, detail A, holes must be 1 inch from chem-mill step and spar, 0.050 inch from edge of part. Hole must be plugged/sealed to prevent moisture from entering flap.							
14	1.2 square inches combined in one zone.							
15	4.5 square inches combined in one zone.							
16	2 square inches combined in one zone.							
17	Figure 4, detail B, holes must be 0.75 from spar flanges, 0.50 from plugged/sealed to prevent moisture from entering flap.							
18	1.2 square inches combined in one zone.							
19	Holes must be repaired, depot engineering disposition required for exceptions.							
20	None allowed.							
21	Remove segment of damaged or undamaged polyurethane tape to determine allowable damage limits to assembly.							

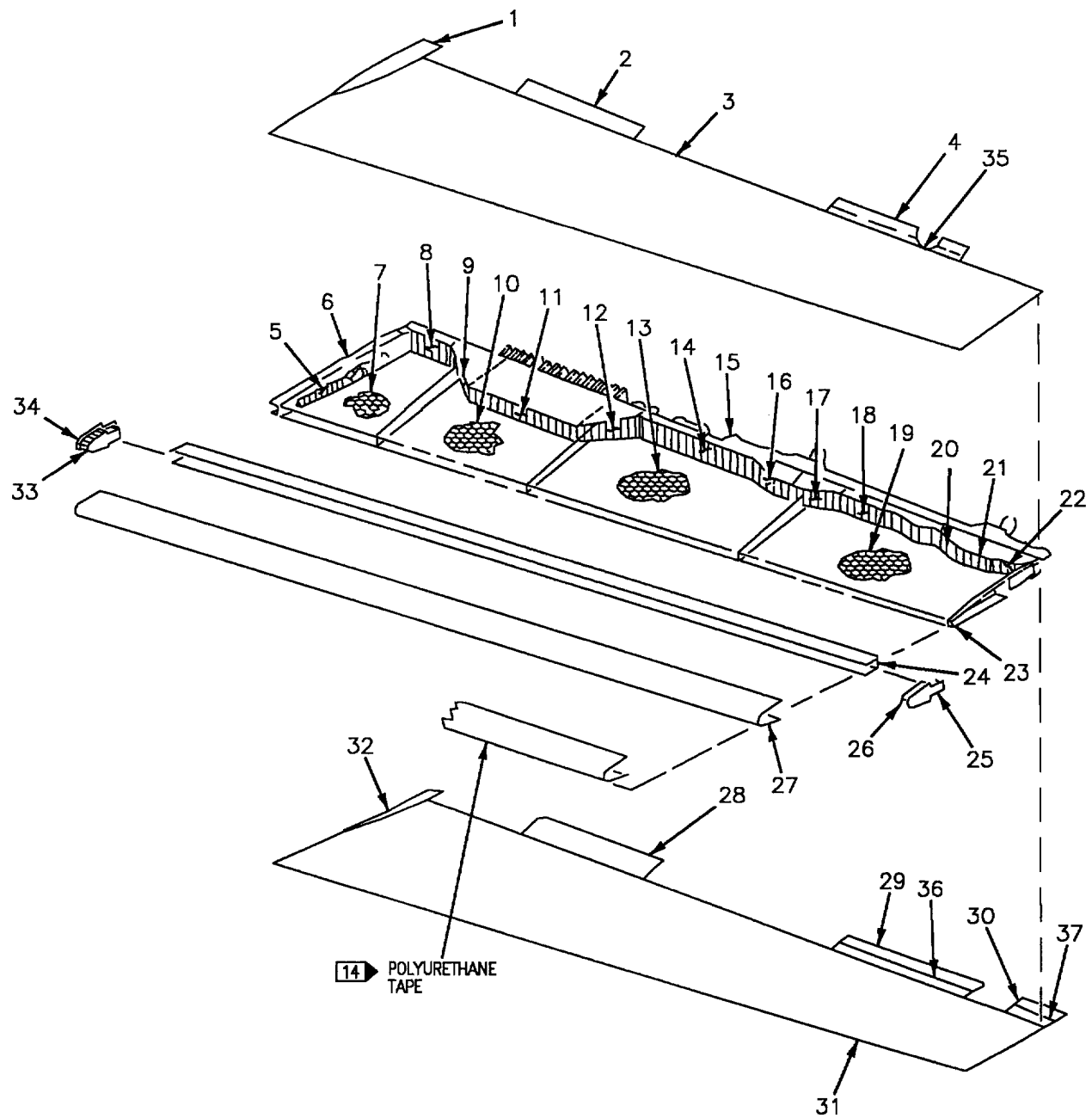


Figure 1. Material Index (Sheet 1)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
1		Fairing 74A190673-1003, -1004	0.060 Sheet	
2	 	Seal 74A190860-2001, -2002 74A190860-2013, -2014	0.100 Sheet	7075-T76 Alclad
3		Skin 74A190850-2001, -2002	0.249 Sheet	7075-T76 Alclad
4	  	Seal 74A190823-2011, -2012 74A190823-2023, -2024 74A190823-2031, -2032	0.080 Sheet	7075-T76 Alclad 7075-T6 Alclad
5		Core 74A190675-2003, -2004		5056-H39 Al Aly
6		Plate 74A190676-2003, -2004	0.032 Sheet	7075-T6 Alclad
7		Core 74A190852-2001, -2002		5056-H39 Al Aly
8		Core 74A190852-2027, -2028		5056-H39 Al Aly
9		Core 74A190852-2025, -2026		5056-H39 Al Aly
10		Core 74A190852-2003, -2004		5056-H39 Al Aly
11		Core 74A190852-2023, -2024		5056-H39 Al Al
12		Core 74A190852-2021, -2022		5056-H39 Al Aly
13		Core 74A190852-2005, -2006		5056-H39 Al Aly
14		Core 74A190852-2019, -2020		5056-H39 Al Aly
15		Spar 74A190854-2003, -2004	Forging	7175-T73652 Al Aly
16		Core 74A190852-2017, -2018		5056-H39 Al Aly
17		Core 74A190852-2015, -2016		5056-H39 Al Aly

Figure 1. Material Index (Sheet 2)

Idx No.	Eft	Nomenclature and Part No.	Description	Material
18		Core 74A190852-2013, -2014		5056-H39 Al Aly
19		Core 74A190852-2007, -2008		5056-H39 Al Aly
20		Core 74A190852-2029, -2030		5056-H39 Al Aly
21	 	Core 74A190852-2011, -2012 74A190852-2033, -2034	 	5056-H39 Al Aly
22	 	Core 74A190852-2009, -2010 74A190852-2031, -2032	 	5056-H39 Al Aly
23		Rib 74A190846-2001, -2002	0.032 Sheet	7075-T6 Alclad
24		Beam 74A190848-2001, -2002	0.040 Sheet	7075-T6 Alclad
25		Plate 74A190676-2005	0.032 Sheet	7075-T6 Alclad
26		Core 74A190675-2009, -2010		5056-H39 Al Aly
27		Skin 74A190849-2001, -2002	0.063 Sheet	7075-T6 Alclad
28	  	Seal 74A190860-2003, -2004 74A190860-2011, -2012 74A190860-2015, -2016	0.100 Sheet	6AL-4V Ti Aly
29	 	Seal 74A190824-2023, -2024 74A190824-2031, -2032	0.063 Sheet	7075-T6 Alclad
30	 	Seal 74A190824-2021, -2022 74A190824-2029, -2030	0.063 Sheet	7075-T6 Alclad
31	 	Skin 74A190851-2001, -2002 74A190851-2003, -2004	0.250 Plate 0.280 Plate	7075-T7651 Alclad 7075-T7651 Al Aly
32		Fairing 74A190674-1003, -1004	0.060 Sheet	
33		Core 74A190675-2007, -2008		5056-H39 Al Aly

Figure 1. Material Index (Sheet 3)



















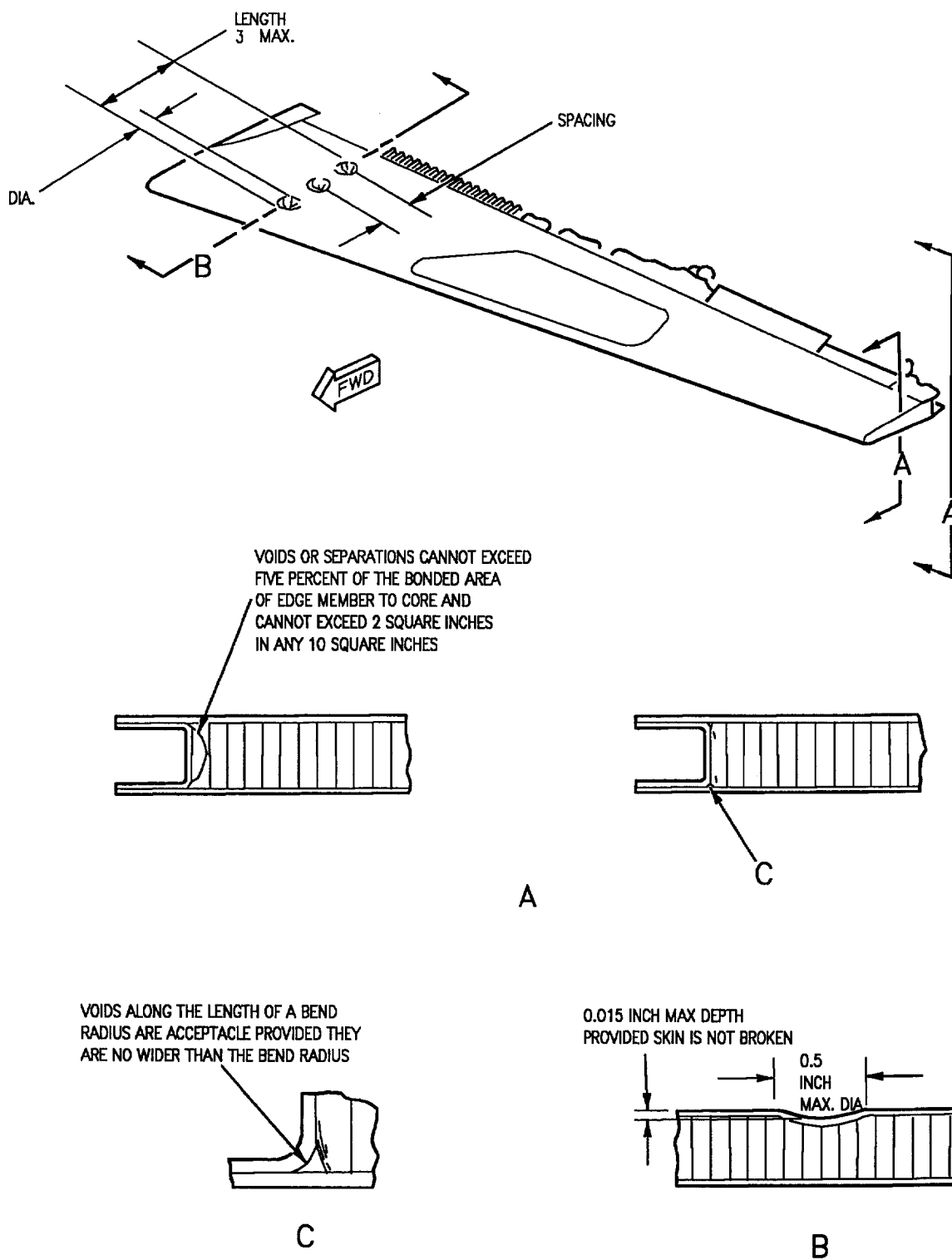
Idx No.	Eft	Nomenclature and Part No.	Description	Material
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35		Shim 74A190823-2039	0.032 Sheet	5052-H39 Al Lam
36		Shim 74A190824-2037	0.032 Sheet	5052-H39 Al Lam
37		Shim 74A190824-2039	0.032 Sheet	5052-H39 Al Lam
<p style="text-align: center;"><b>LEGEND</b></p> <p> Lexan F-60011 Polycarbonate.</p> <p> 3/16 hex cell 0.0010 nonperforated honeycomb.</p> <p> 1/8 hex cell 0.0020 nonperforated honeycomb.</p> <p> 161520 THRU 161761.</p> <p> 161924 THRU 162414.</p> <p> 162415 AND UP.</p> <p> 161520 THRU 162414.</p> <p> 161520 THRU 161712 3/16 hex cell 0.0010 nonperforated honeycomb, 161713 THRU 162414 1/8 hex cell 0.0010 nonperforated honeycomb.</p> <p> 1/8 hex cell 0.0010 nonperforated honeycomb.</p> <p> 161520 THRU 161924.</p> <p> 161925 AND UP.</p> <p> 161520 THRU 161715.</p> <p> 161716 THRU 162414.</p> <p> Polyurethane tape to protect leading edge finish. For application of polyurethane tape (A1-F18AC-SRM-500, WP027 00) Finish System.</p> <p> 163169 AND UP.</p>				

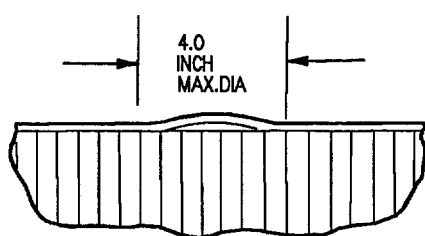
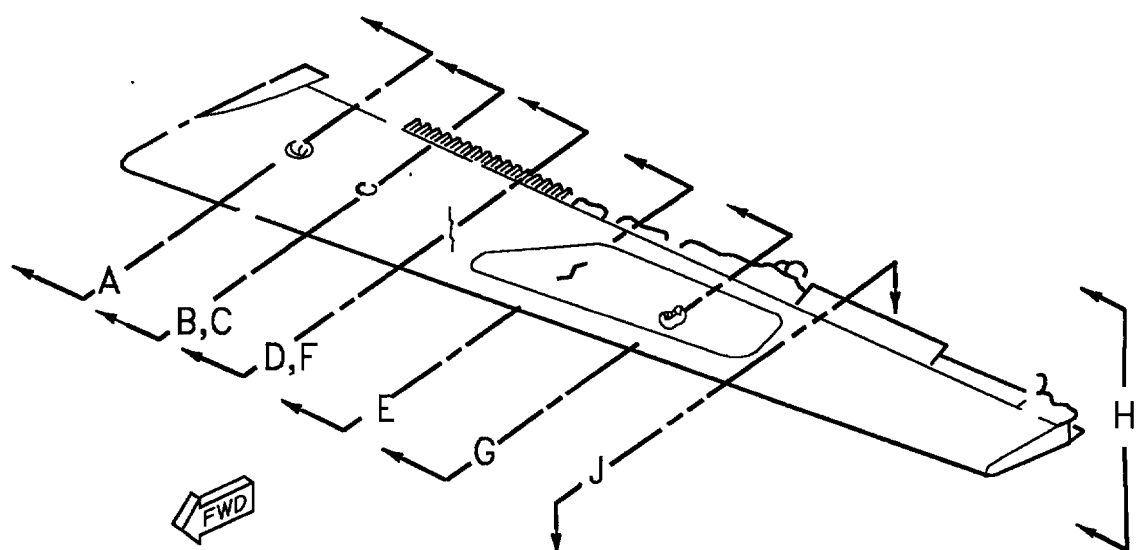
Figure 1. Material Index (Sheet 4)



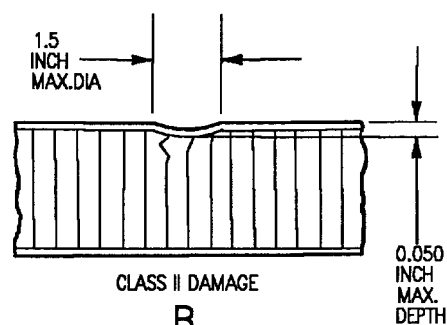
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Figure 2. Negligible Damage, Aluminum Skin and Aluminum Honeycomb Core

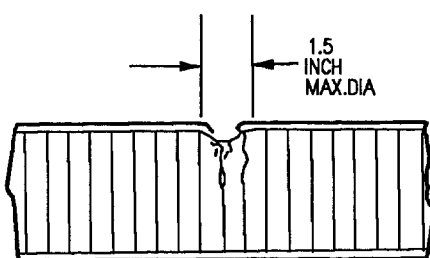




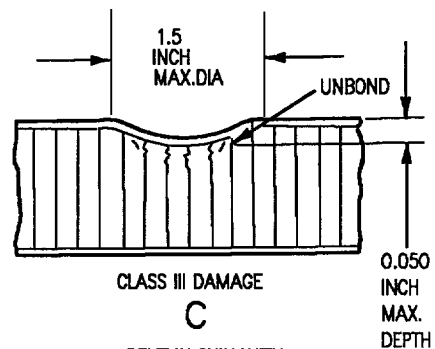
CLASS I DAMAGE  
A  
VOID OR SEPARATION  
BETWEEN SKIN AND CORE



CLASS II DAMAGE  
B  
DENTS IN SKIN

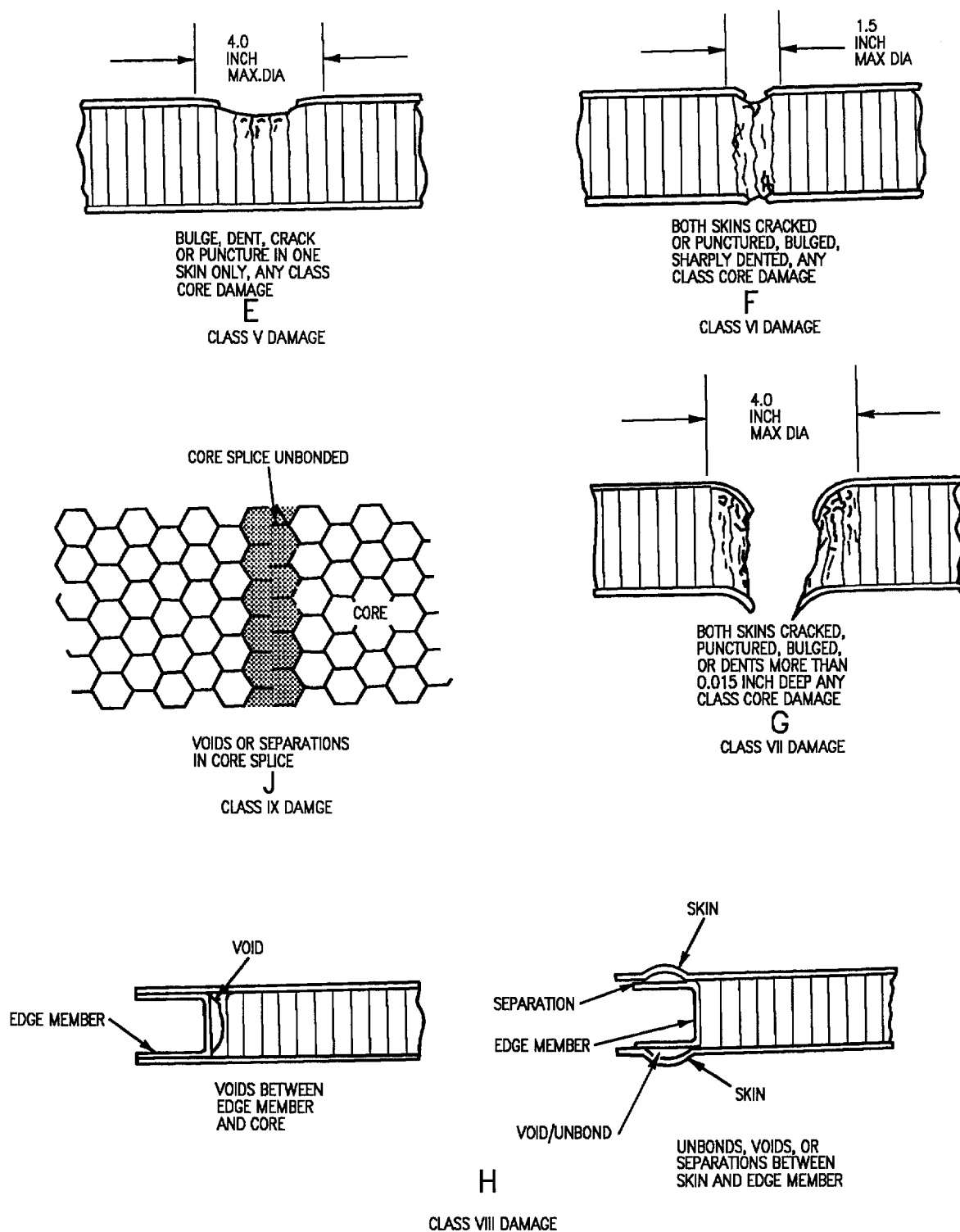


CLASS IV DAMAGE  
D  
BULGE, SHARP DENT,  
CRACK OR PUNCTURE  
IN ONE SKIN CORE  
MAY OR MAY NOT  
BE DAMAGED



CLASS III DAMAGE  
C  
DENT IN SKIN WITH  
CRUSHED CORE OR  
UNBOND

Figure 3. Repairable Damage Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 1)



15010302

Figure 3. Repairable Damage Aluminum Skin and Aluminum Honeycomb Core  
(Sheet 2)

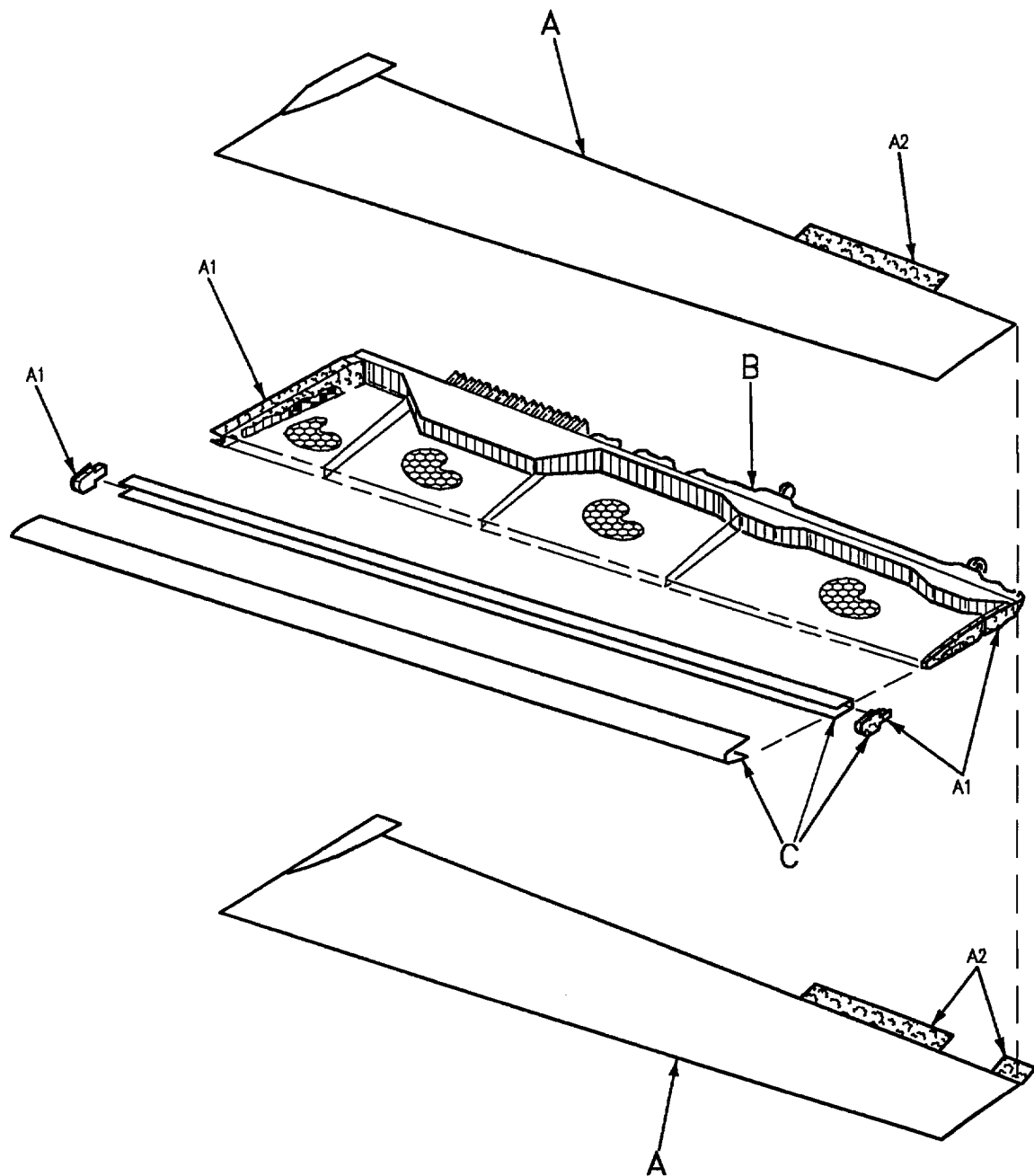
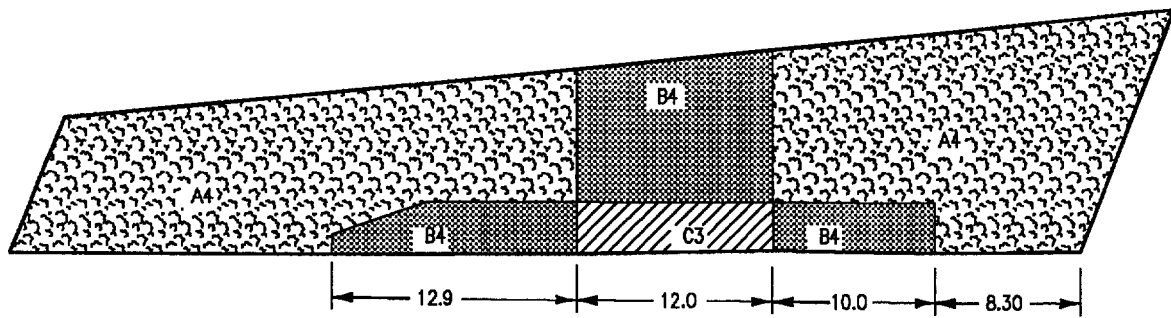
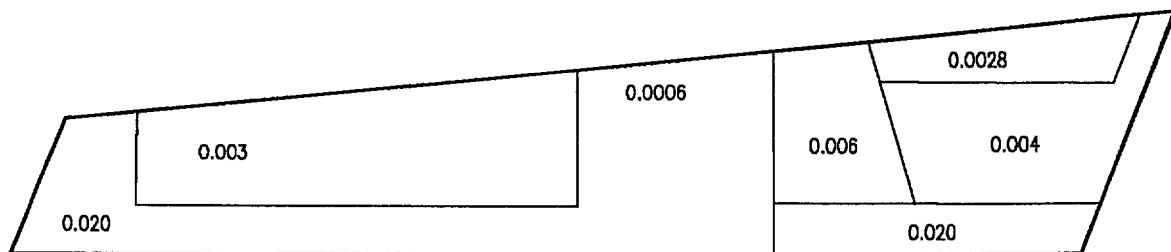


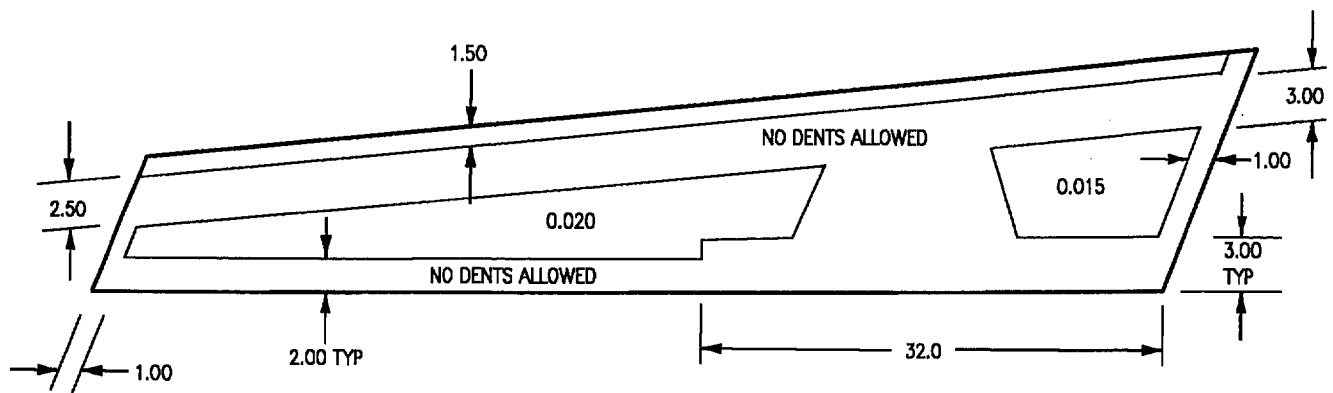
Figure 4. Repair Zones (Sheet 1)



STRESS INTENSITY  
A

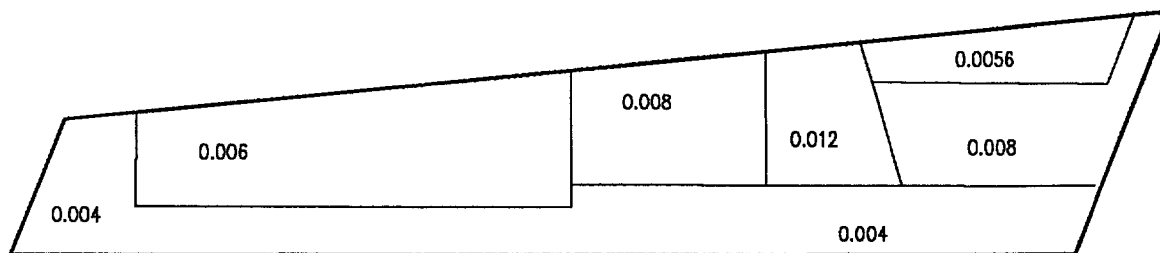


NEGLIGIBLE SCRATCH DEPTH  
A



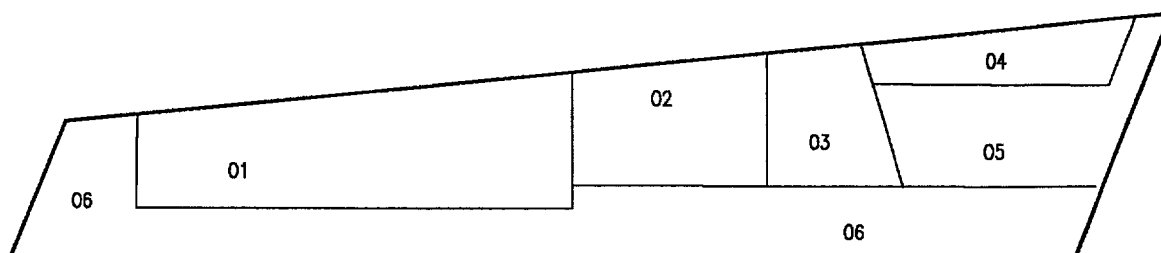
DENTS  
A

Figure 4. Repair Zones (Sheet 2)



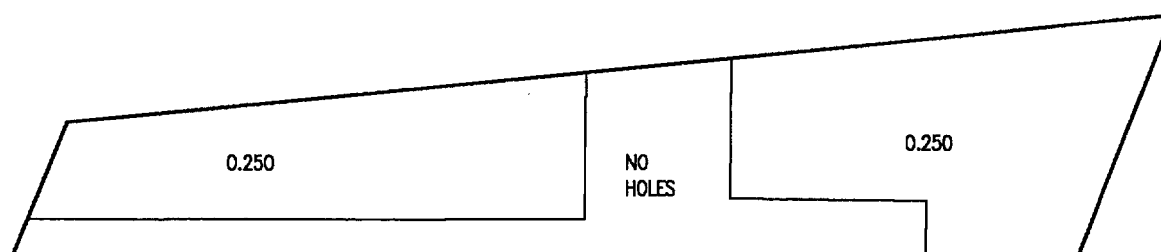
MINOR SCRATCH DEPTH

A



MINOR NICKS, GOUGES, AND CORROSION DEPTH

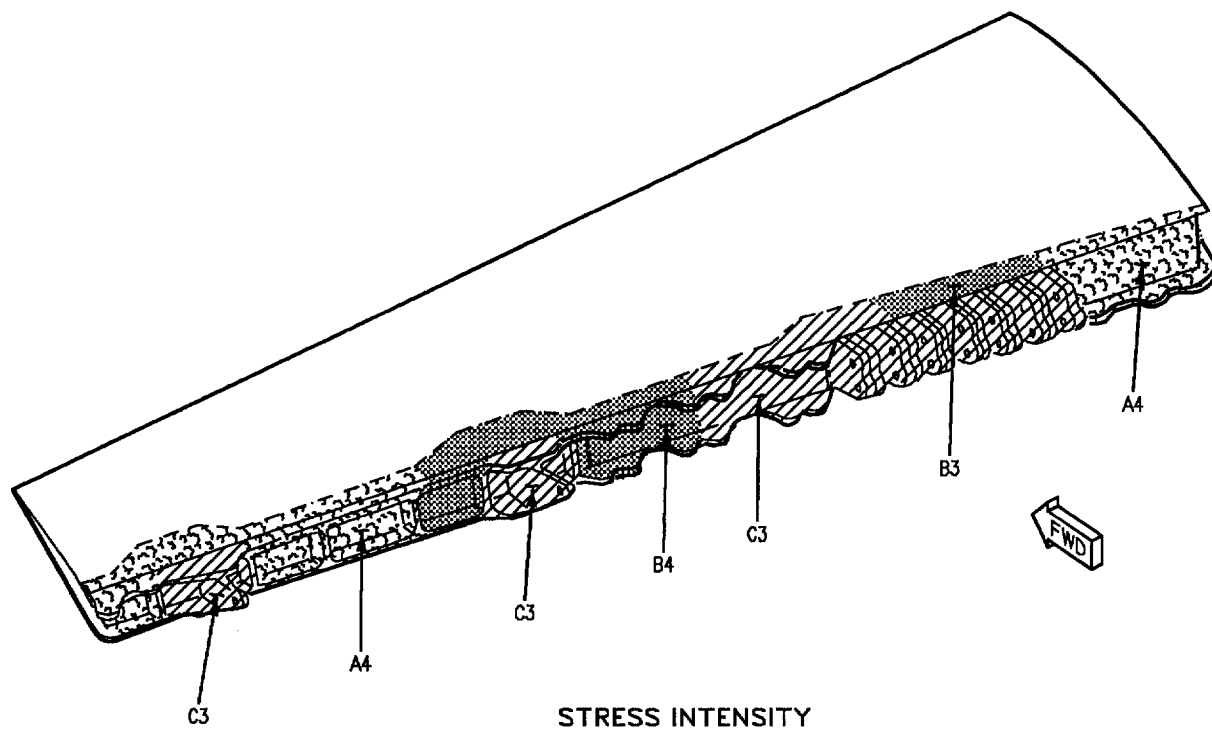
A



HOLES

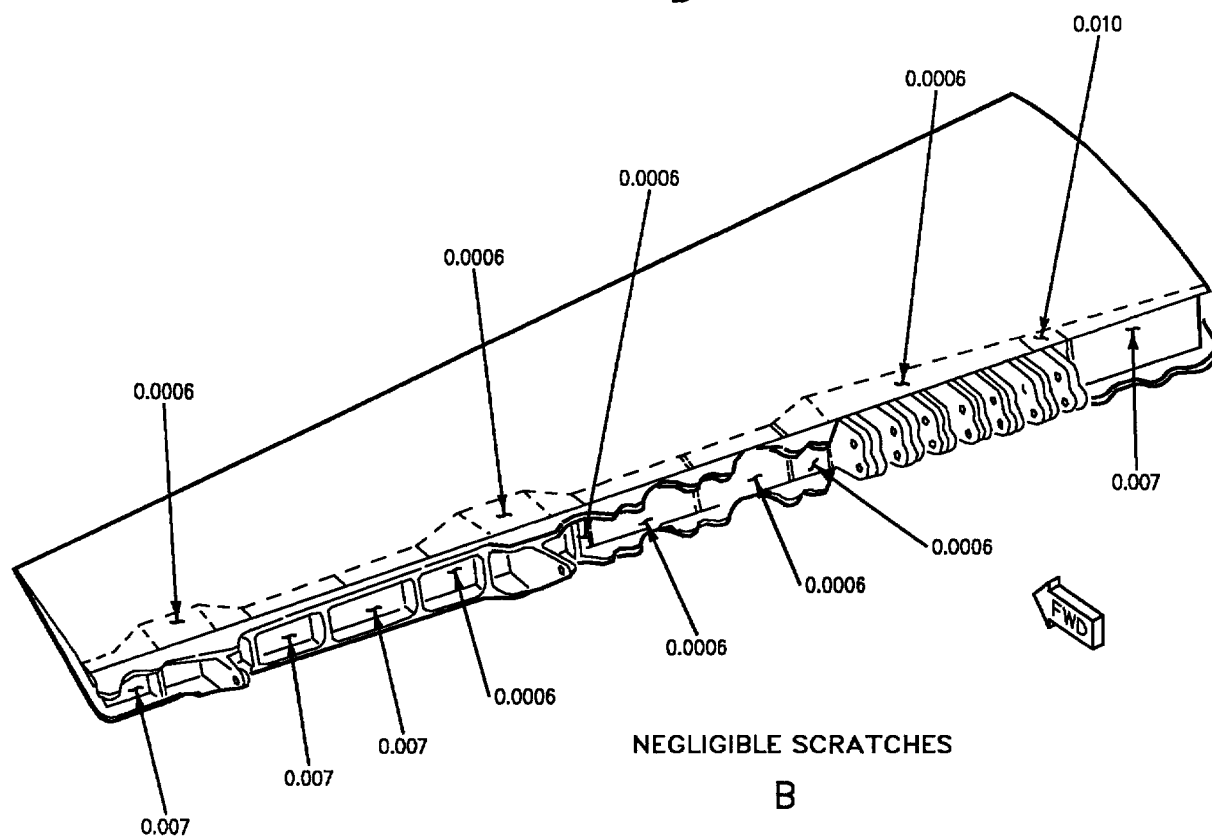
A

Figure 4. Repair Zones (Sheet 3)



## STRESS INTENSITY

B



NEGLIGIBLE SCRATCHES

B

**Figure 4. Repair Zones (Sheet 4)**

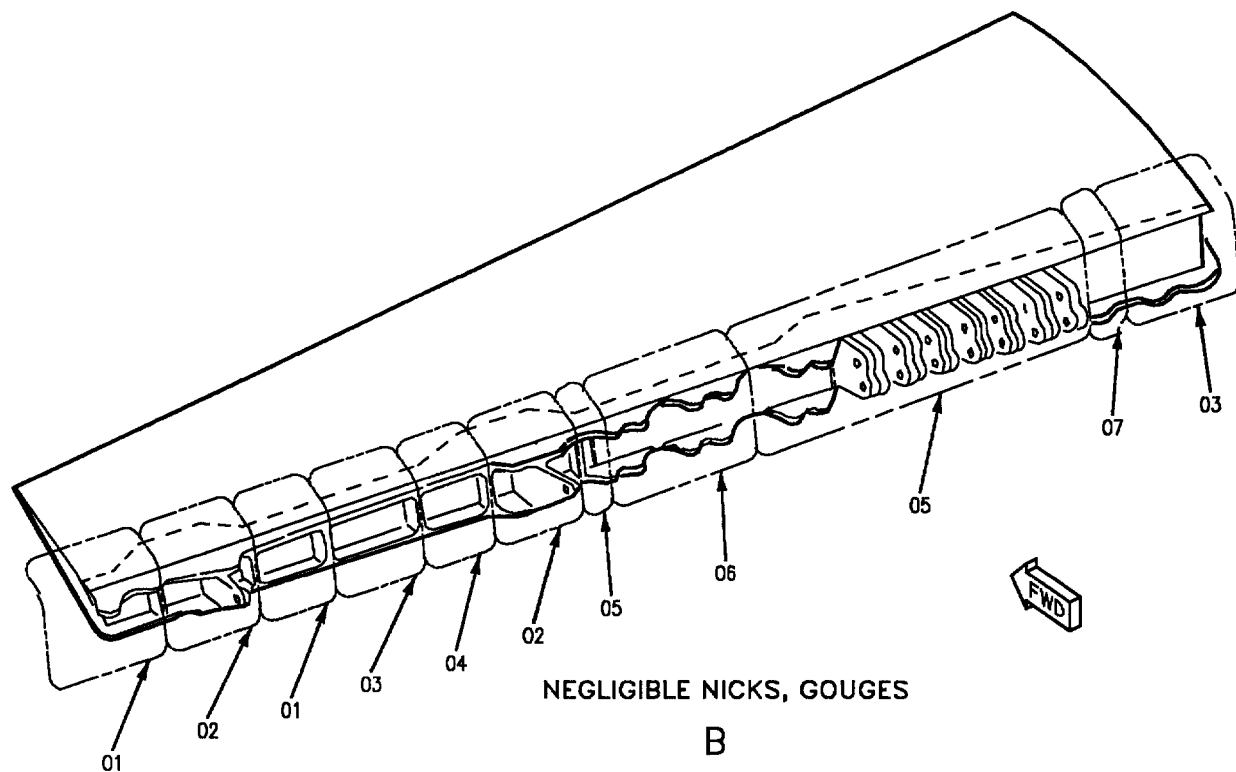
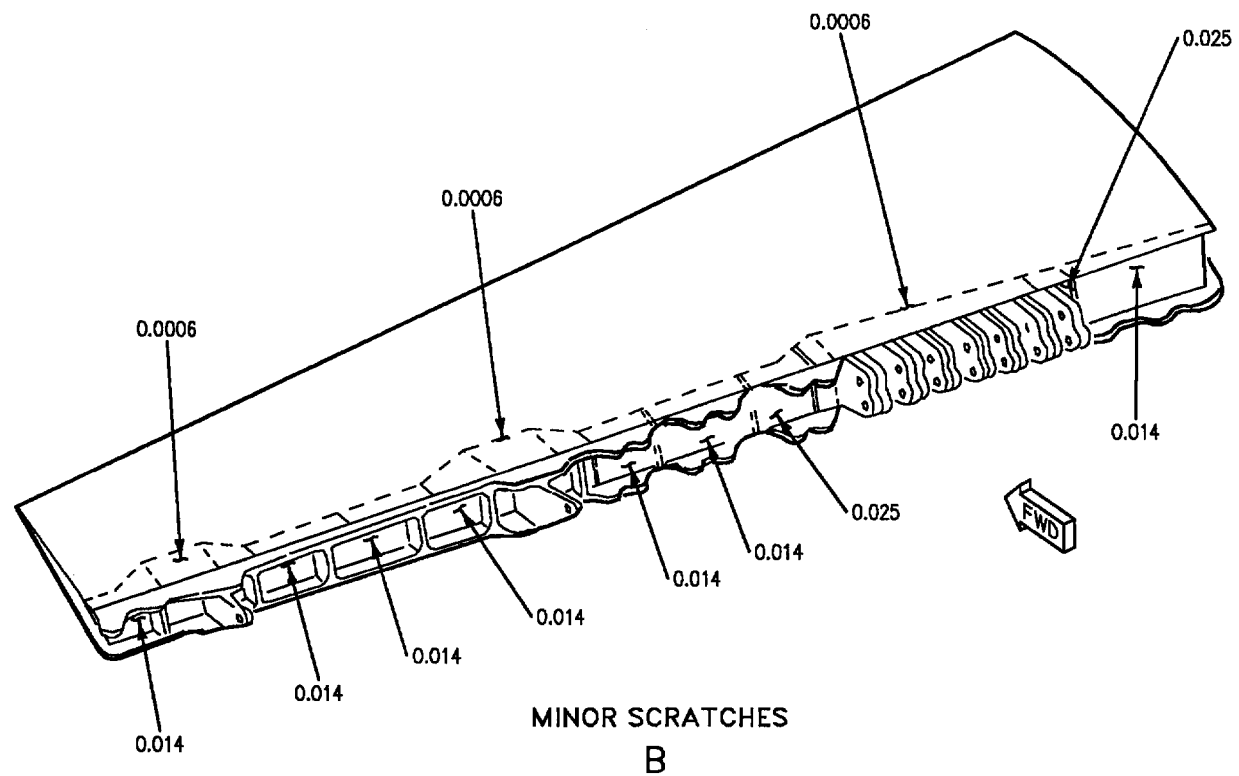
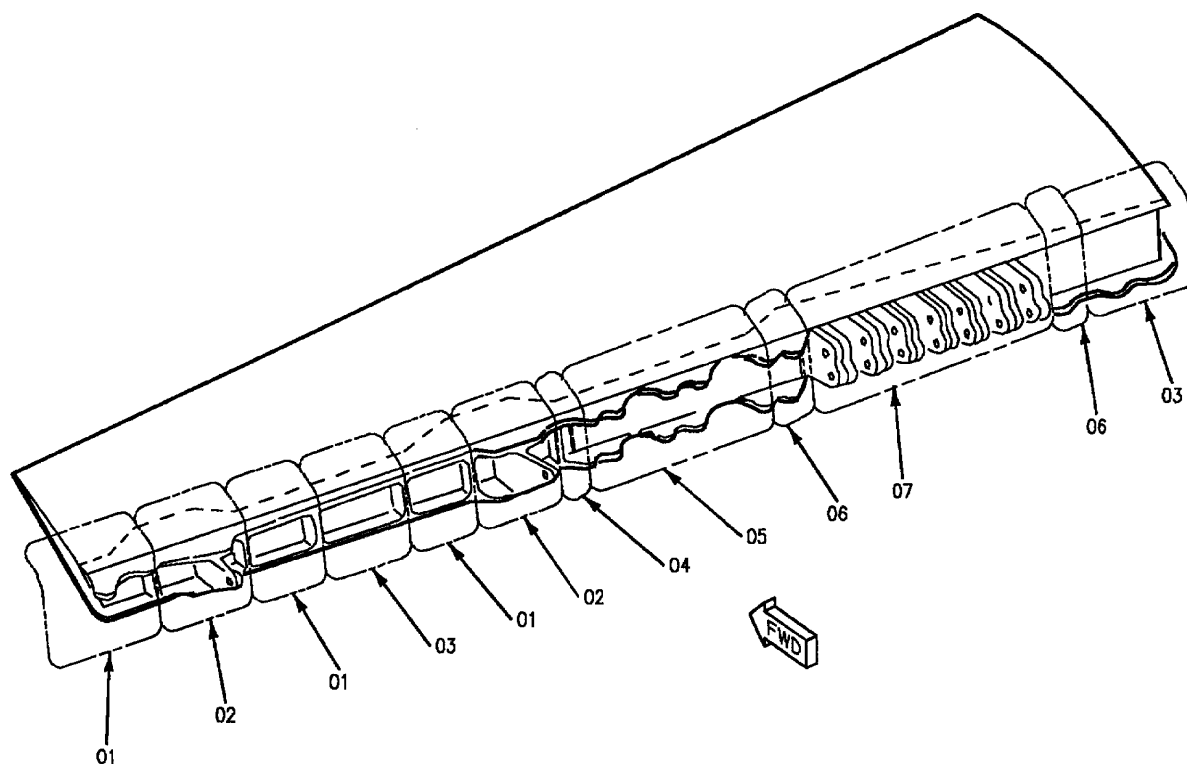
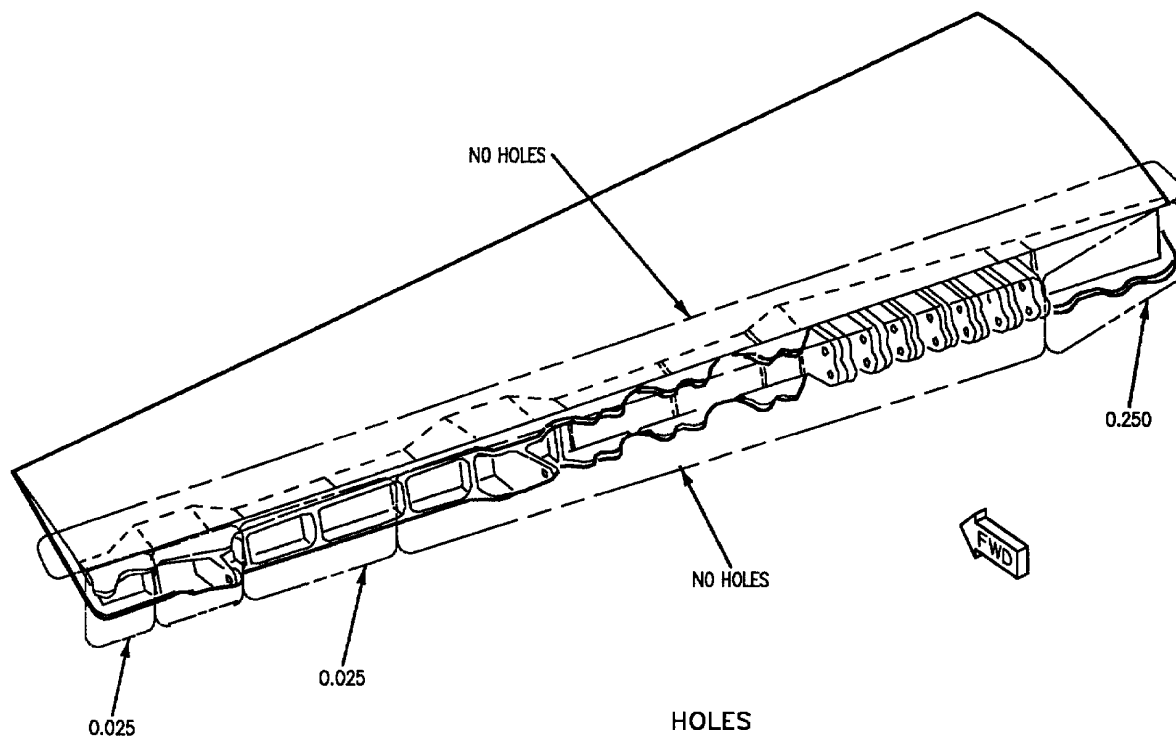


Figure 4. Repair Zones (Sheet 5)



MINOR NICKS, GOUGES, AND CORROSION DEPTH

B



HOLES

B

Figure 4. Repair Zones (Sheet 6)



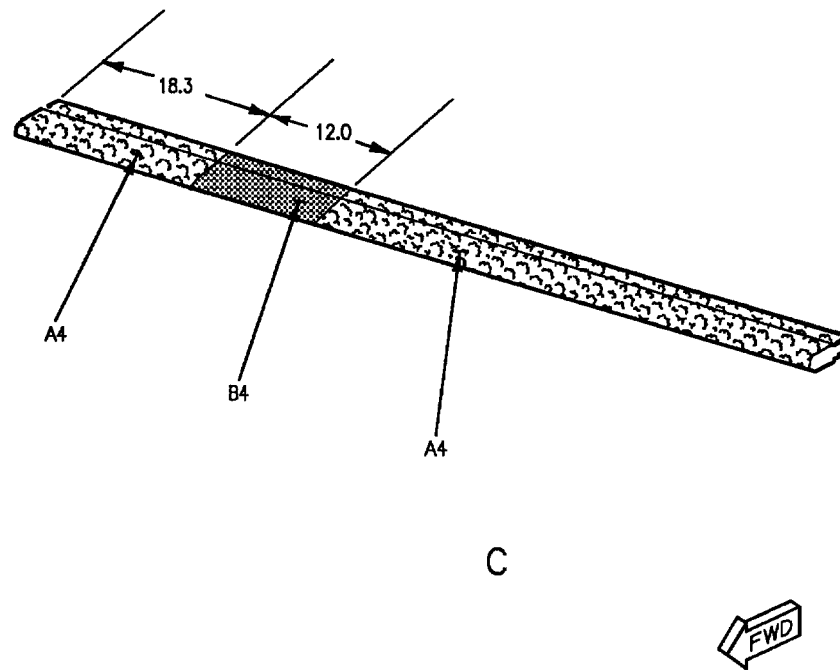


Figure 4. Repair Zones (Sheet 7)

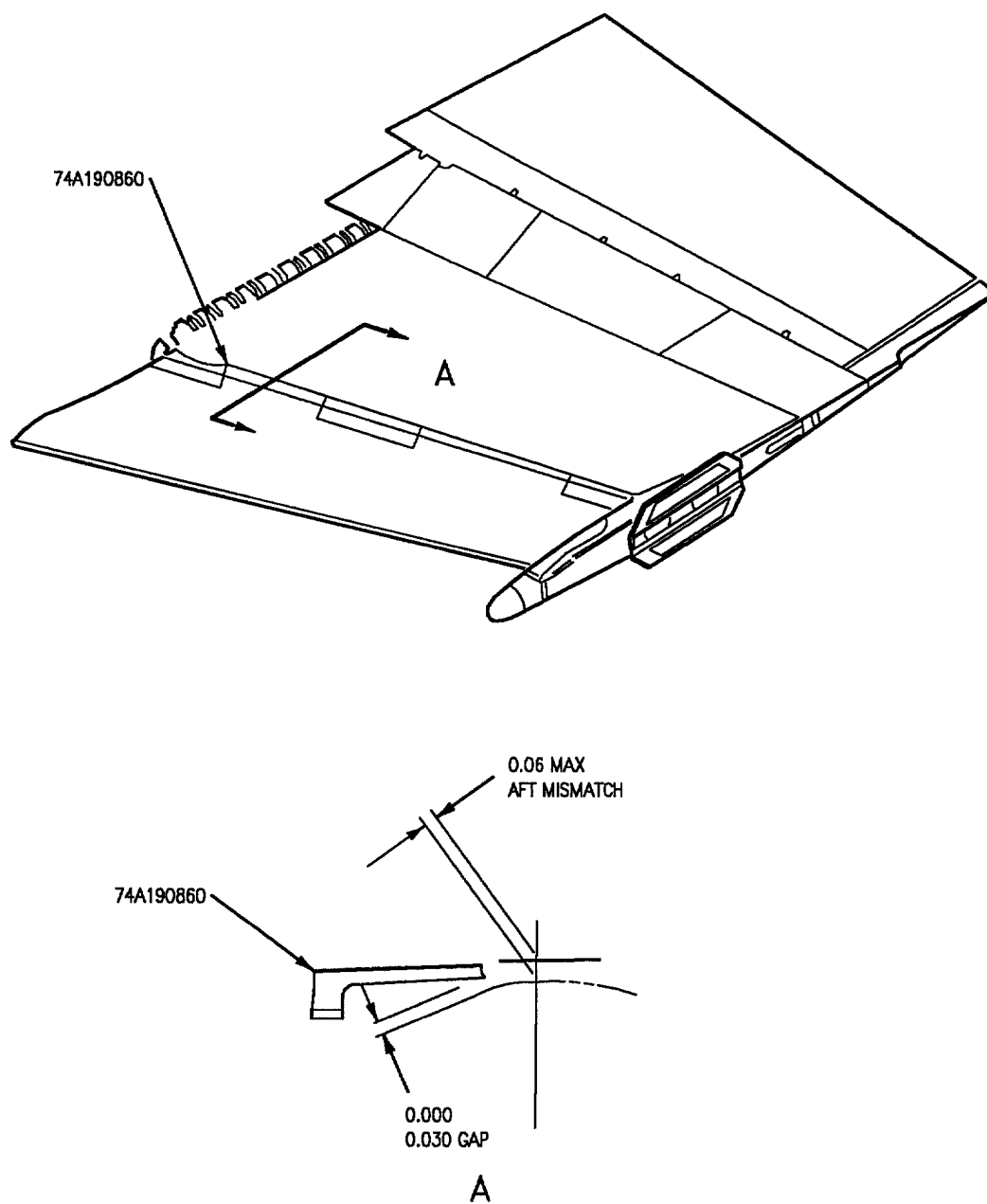


Figure 5. Seal (74A190860) Gap and Mismatch (Sheet 1)

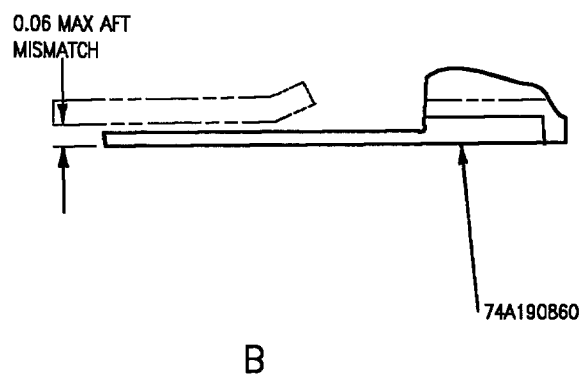
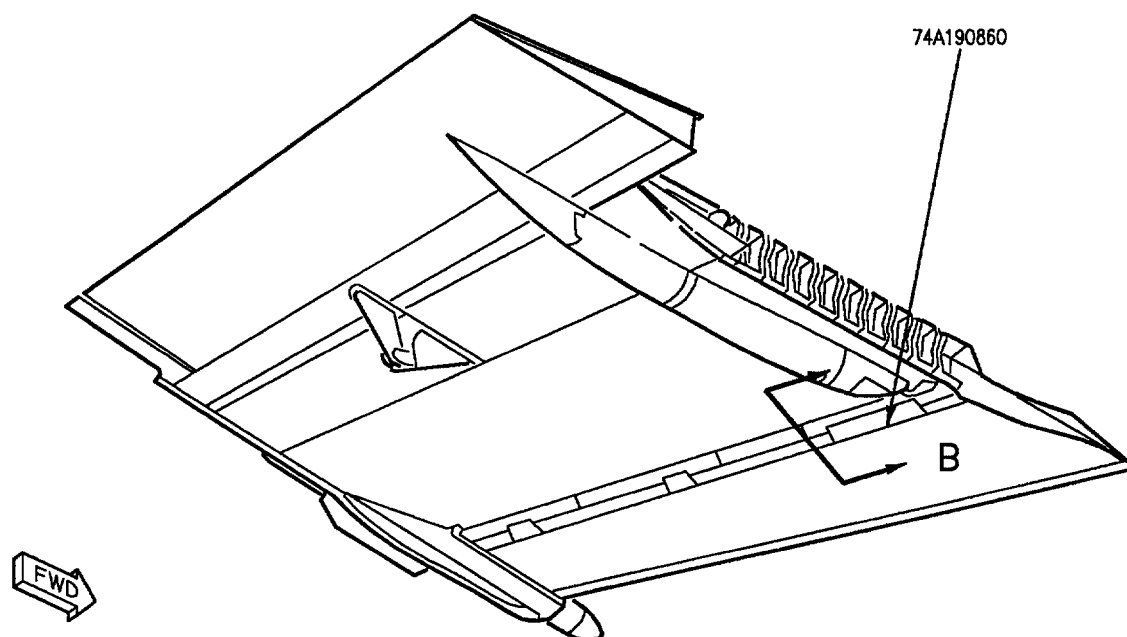


Figure 5. Seal (74A190860) Gap and Mismatch (Sheet 2)



## ORGANIZATIONAL MAINTENANCE

## STRUCTURE REPAIR

## OUTBOARD LEADING EDGE FLAP

## FREE PLAY INSPECTION AND WEAR TOLERANCES

## Reference Material

Structure Repair, Wing .....	A1-F18AC-SRM-210
Maintenance Fixture RE174190203, Outboard Leading Edge Flap Repairs .....	WP015 04
Aircraft Corrosion Control .....	A-F18AC-SRM-500
Inner and Outer Wing Finish System and Markings .....	WP027 00
Integrated Flight Controls .....	A1-F18AC-570-300
Rig Mode and Memory Inspect, Effectivity: 161520 AND UP; ALSO	
161353 THRU 161519 AFTER F18 AFC 27 .....	WP011 01
Outboard Flap (84MPU537 or 84MPV538) .....	WP032 00
Outboard Leading Edge Flap Transmission (84 MAU504 OR 84 MAU503)	
and Shaft Assembly .....	WP033 00
Line Maintenance Access Doors .....	A1-F18AC-LMM-010
Line Maintenance Procedures .....	A1-F18AC-LMM-000
Plane Captain Manual .....	A1-F18AC-PCM-000
Structure Repair, General Information .....	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant; Preparation and Application .....	WP011 00

## Alphabetical Index

Subject	Page No.
Description .....	2
Free Play Inspection for 161353 THRU 161519 .....	2
Free Play Inspection for 161520 AND UP .....	3
Inspection and Correction .....	4
Wear Tolerances .....	5

## Record of Applicable Technical Directives

None

## 1. DESCRIPTION.

2. Wear limits established for the flap allow a maximum free play of 0.128 inch. The paragraphs below contain procedures for free play inspection, inspection and correction for failed freeplay inspection, wear tolerances, support equipment and materials required.

3. FREE PLAY INSPECTION FOR 161353 THRU 161519. See figure 1. Do steps below:

## Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Arm Assembly	Fabricate
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
Dial Indicator Kit (0.001 Inch Graduations, Minimum)	196 (Starrett or Equivalent)
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate
Spring Resiliency Tester	DPPH150
Tripod Jack, 20 Ton (T20-3FH)	782D1100

## Materials Required

Nomenclature	Specification or Part Number
Aircraft Marking Pencil, Black	MIL-P-83953 Type I, Class A

a. Make sure flap control surface lock is not installed (A1-F18AC-PCM-000).

b. Make sure horizontal stabilator position support is not installed (A1-F18AC-PCM-000).

c. Make sure doors 83L, 83R, 84L, 84R, and radome are closed (A1-F18AC-LMM-010).

d. On Digital Display Indicator ID-2150/ASM-612 in nose wheelwell, observe WPN SYS FAIL indicator.

e. Apply electrical power (A1-F18AC-LMM-000).

f. On GND PWR control panel assembly, set 1 switch to A ON and 2 switch to B ON.

g. Set left and right Digital Display Indicator (DDI) IP-1317/A power switch to DAY or NIGHT. Allow 2 minute warmup. Adjust BRT and CONT controls for best display.

h. Press right DDI MENU pushbutton switch.

i. Press right DDI BIT pushbutton switch.

j. On LH vertical console control panel, set FLAP switch to AUTO.

k. On FCS Control Panel C-10406/ASW-44, set the GAIN switch to NORM.

l. On MAP GAIN control panel assembly, set SPIN switch to NORM.

m. On GND PWR control panel assembly, set 4 switch to B ON.

n. Wait 20 seconds for BIT to initialize.

o. Simultaneously press the below switches:

(1) On FCS Control Panel C-10406/ASW-44, press RESET switch.

(2) On Control Stick Sensor DT-601/ASW-44, press the autopilot/nosewheel steering disengage switch (paddle switch).

**WARNING**

Control surfaces move during initiated BIT with hydraulic power applied. To prevent personnel injury or equipment damage, be sure personnel and equipment are kept clear of control surfaces.

p. Apply hydraulic power to system 1 and 2 (A1-F18AC-LMM-000).

q. On FCS Control Panel C-10406/ASW-44, press RESET switch.

r. On FCS Control Panel C-10406/ASW-44, press T/O TRIM PUSH switch.

s. Fabricate aluminum arm assembly. See detail G through M.



Use extreme care when installing clamp not to damage skin or paint.

t. Attach dial indicator mount to missile launcher mount with clamp using a nonmetallic sheet between clamp and missile launcher mount.

u. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.

v. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of outboard leading edge flap. Adjust dial indicator to 0.



To prevent damage to aircraft, make sure that there is enough clearance between jack and flap before moving jack under flap and do not raise jack higher than required to locate the arm in horizontal position.

w. Position jack and arm under flap, raise jack until rubber pad on arm contacts flap and arm is horizontal. Mark location of rubber pad with pencil. Seat jack by placing blocks under jack foot pads.

x. Thread spring resiliency tester into aluminum plate. Place aluminum plate on upper surface of outboard leading edge flap at correct location and apply a 50 pound down load.

y. Readjust dial indicator to 0 with load applied.

z. Attach spring resiliency tester to arm and pull arm down with a 15 pound load.

aa. Record total deflection from dial indicator with 15 pound load applied.

ab. Total deflections should not exceed 0.128 inch. A total deflection that exceeds 0.128 inch requires inspection and correction per paragraph 5.

ac. Remove dial indicator assembly from dial indicator mount.

ad. Remove electrical and hydraulic power (A1-F18AC-LMM-000).

ae. Remove dial indicator clamp and mount from missile launcher mount.

af. Lower jack and arm, remove arm and blocks and move jack out from under aircraft.

ag. Remove aluminum plate from spring resiliency tester.

ah. Refinish surface (A1-F18AC-SRM-500, WP027 00).

4. FREE PLAY INSPECTION FOR 161520 AND UP. See figure 1. Do steps below:

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Aluminum Arm Assembly	Fabricate
Aluminum Plate, 4X4X1/2, with a Drilled and Trapped Hole of 5/16-Inch No. 18 Thread in Center of Plate	Fabricate
Dial Indicator Kit (0.001 Inch Graduations, Minimum)	196 (Starrett or Equivalent)
External Electrical Power Source	-
External Hydraulic Power Source	-
Rubber Pad, 4X4X1/8	Fabricate
Spring Resiliency Tester	DPPH150
Tripod Jack, 20 Ton (T20-3FH)	782D1100

## Materials Required

Nomenclature	Specification or Part Number
Aircraft Marking, Pencil Black	MIL-P-83953 Type I, Class A

- a. Do rig mode setup (A1-F18AC-570-300, WP011 01).
- b. On LH vertical console control panel, set FLAP switch to HALF.
- c. Fabricate aluminum arm assembly. See detail G through M.
- d. Attach dial indicator mount to missile launcher mount with clamp using a nonmetallic sheet between clamp and missile launcher mount.
- e. Attach dial indicator assembly to dial indicator mount and position at correct location, view A.
- f. Adjust dial indicator assembly with dial indicator plunger resting on upper surface of outboard leading edge flap. Adjust dial indicator to 0.



To prevent damage to aircraft, make sure that there is enough clearance between jack and flap before moving jack under flap and do not raise jack higher than required to locate the arm in horizontal position.

- g. Position jack and arm under flap, raise jack until rubber pad on arm contacts flap and arm is horizontal. Mark location of rubber pad with pencil. Seat jack by placing blocks under jack foot pads.
- h. Thread spring resiliency tester into fabricated aluminum plate. Place aluminum plate on upper surface of outboard leading edge flap at correct location and apply a 50 pound down load.
- i. Readjust dial indicator to 0 with load applied.
- j. Attach spring resiliency tester to arm and pull arm down with a 15 pound load.
- k. Record total deflection from dial indicator with 15 pound load applied.

l. Total deflection should not exceed 0.128 inch. A total deflection that exceeds 0.128 inch requires inspection and correction per paragraph 5.

- m. Remove dial indicator assembly from dial indicator mount.
- n. Set flap switch to AUTO.
- o. Do rig mode shutdown (A1-F18AC-570-300, WP011 01).
- p. Remove dial indicator clamp and mount from missile launcher mount.
- q. Lower jack and arm, remove arm and blocks and move jack out from under aircraft.
- r. Remove aluminum plate from spring resiliency tester.
- s. Refinish surface (A1-F18AC-SRM-500, WP027 00).

**5. INSPECTION AND CORRECTION.** If the outboard leading edge flap has failed the freeplay inspection, the joints should be inspected and corrected.

- a. For retorquing of expandable bolts (A1-F18AC-570-300, WP032 00 and WP033 00) as first corrective action.
- b. Remove outboard leading edge flap (A1-F18AC-570-300, WP032 00).
- c. Disassemble the idler hinge and transmission joints. Do not press out bushings or remove staked bearings.
- d. Visually inspect for any broken or yielded components. Measure all replaceable and repairable parts (3, 5, 7, 8, 11, 13, 15 thru 18, 22, 24 thru 27, 29, 30, figure 2) and compare to allowable wear tolerances.
- e. Repair or replace items (3, 8, 11, 16, 19, 20, 21, 23, 24, 25, 26, and 30) per (WP015 04) if they exceed the allowable wear tolerances. Replace all other replaceable items if they exceed wear tolerances.
- f. Reassemble joints and repeat freeplay inspection. If outboard leading edge flap fails a



second freeplay inspection, engineering disposition is required.

6. **WEAR TOLERANCES.** See figure 2. Clearances that exceed those in figure require depot engineering disposition unless other specific information is given.

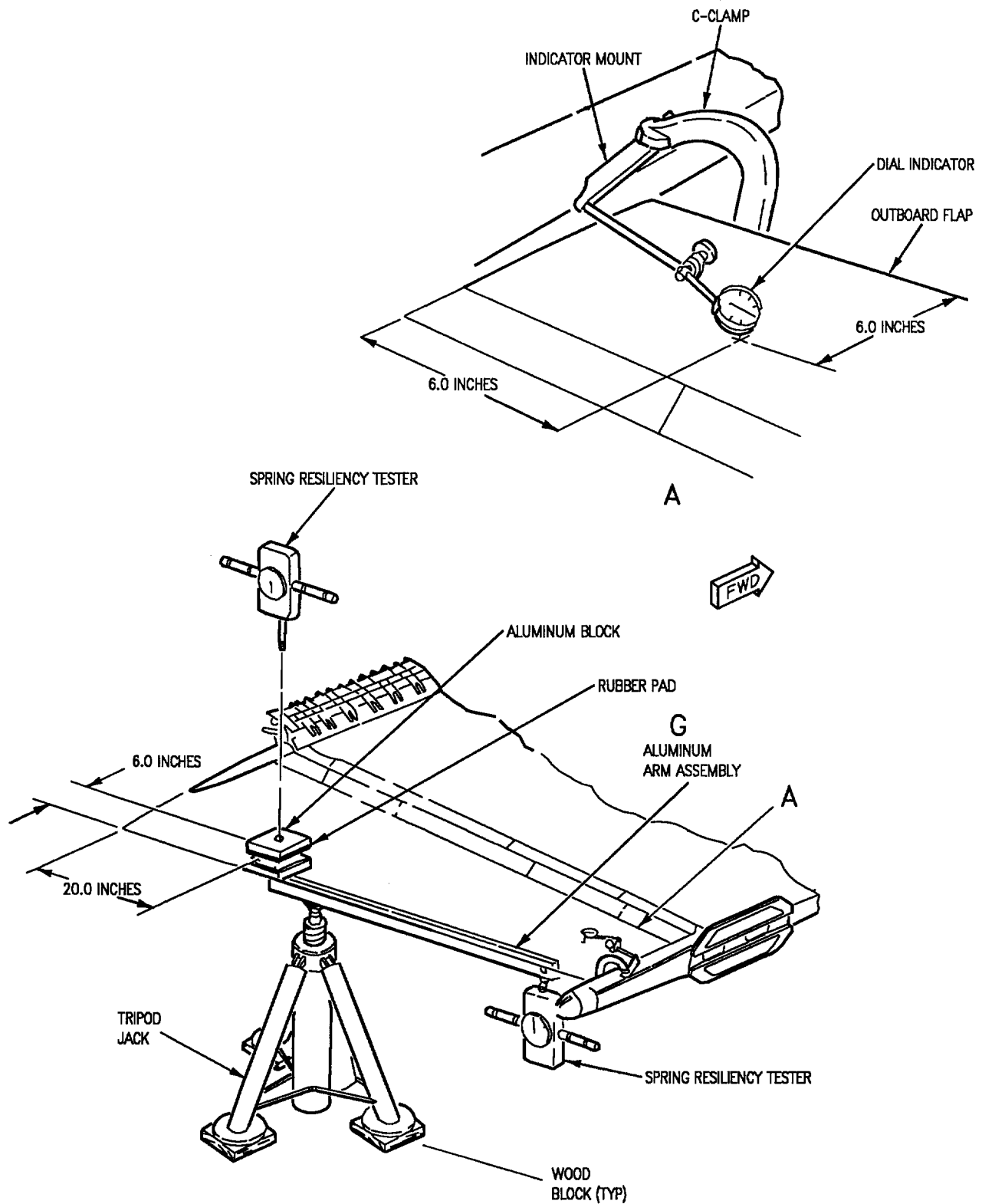
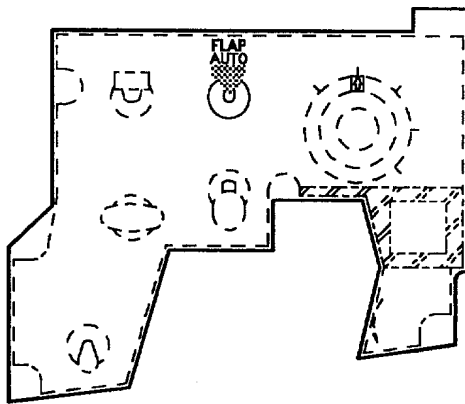
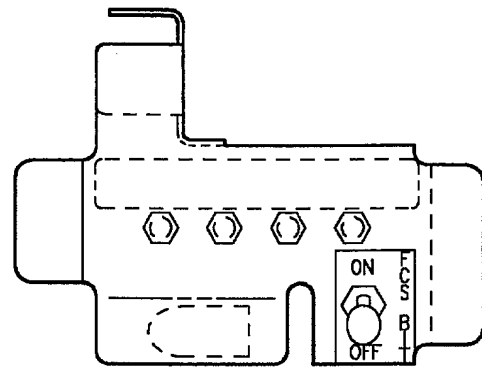


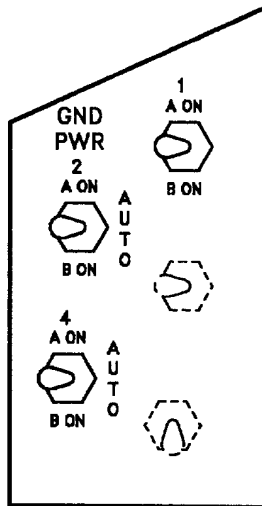
Figure 1. Free Play Inspection (Sheet 1)



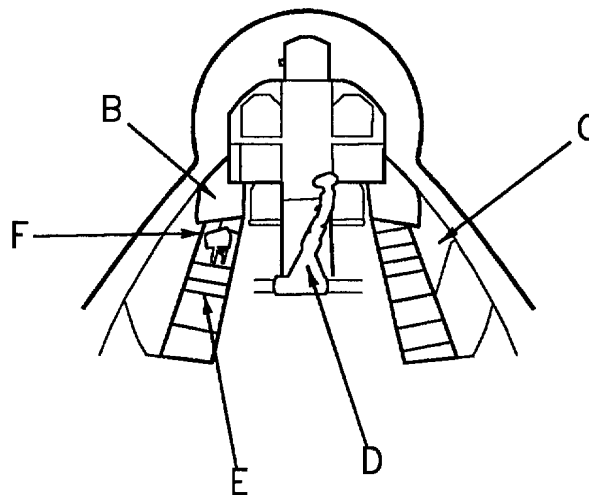
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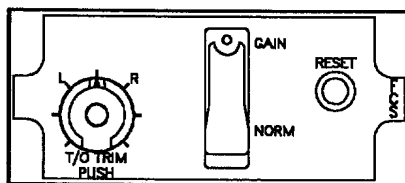
C



F



E



D

AUTOPILOT/NOSEWHEEL  
STEERING DISENGAGE  
SWITCH(PADDLE SWITCH)

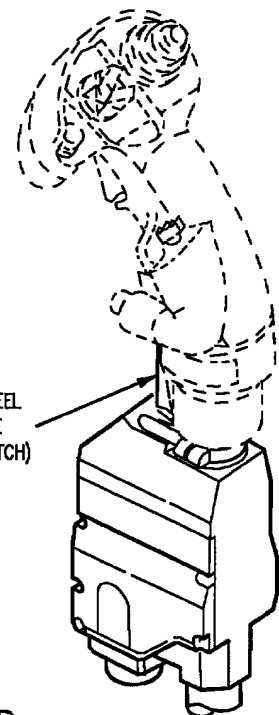


Figure 1. Free Play Inspection (Sheet 2)

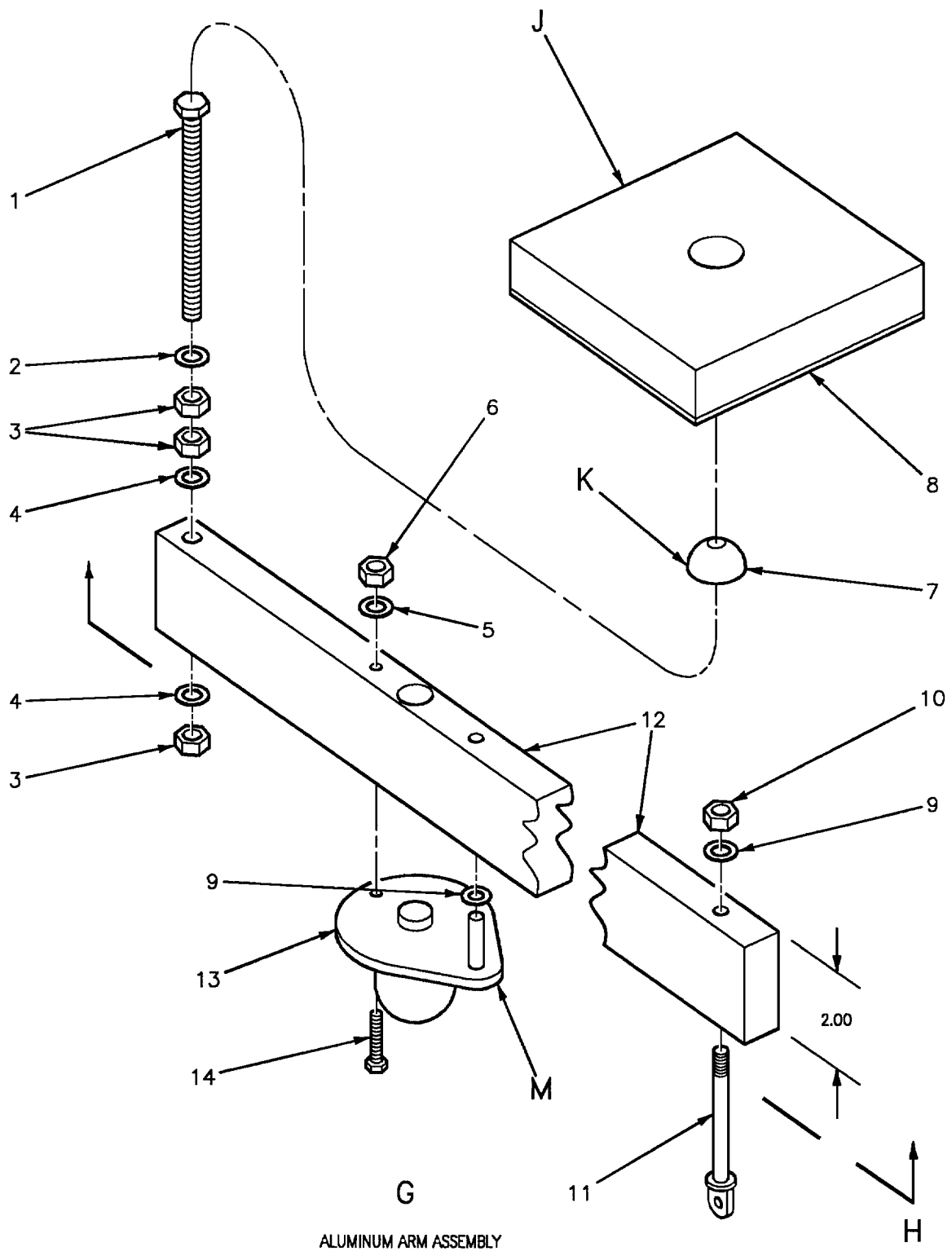


Figure 1. Free Play Inspection (Sheet 3)

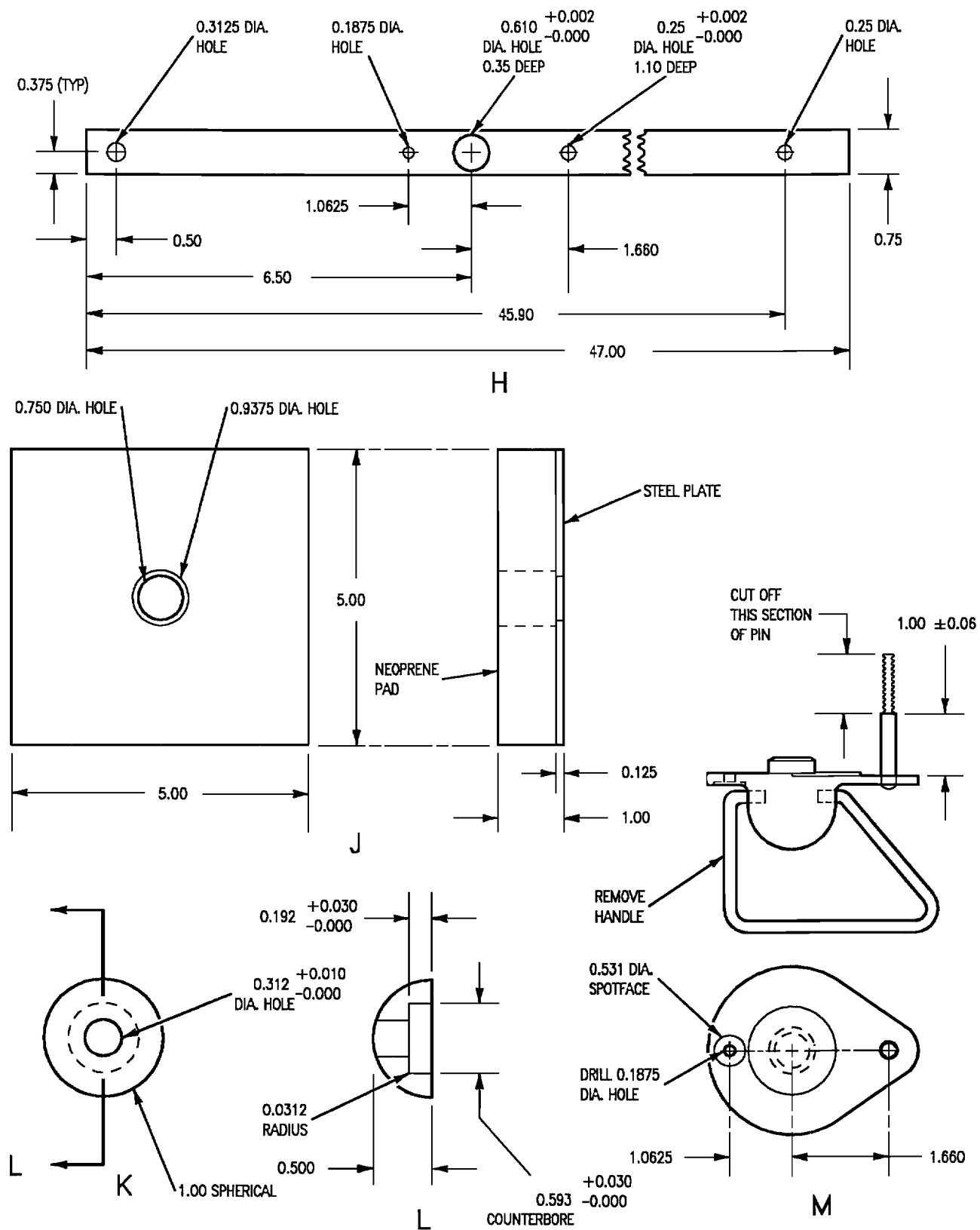






Figure 1. Free Play Inspection (Sheet 4)

INDEX NO.	PART NAME	SPECIFICATION OR PART NO.
1	BOLT, HEX HEAD	NAS428-5-42
2	WASHER, FLAT	AN970-5
3	NUT	AN315-5
4	WASHER, FLAT	AN960JD516
5	WASHER, FLAT	AN960JD10
6	NUT	NAS1291-C3M
7	SWIVEL BALL	
8	TENSION PAD	
9	WASHER, FLAT	AN960JD416
10	NUT	NAS1291-C4M
11	EYE BOLT	AN43B-25A
12	ARM	
13	JACK PAD	 53E010004-1
14	BOLT, HEX HEAD	NAS1801-3-16





LEGEND	
	FABRICATE FROM MMS-202 STEEL ROD.
	FABRICATE NEOPRENE PAD FROM MIL-R-6130, TYPE 2, GRADE A, CONDITION FIRM; FABRICATE STEEL PLATE FROM QQ-S-633, COMP. 1018, COND. NORMALIZED; BOND NEOPRENE PAD TO STEEL PLATE USING MIL-S-83430; FOR SEALANT PREPARATION AND APPLICATION (A1-F18AC-SRM-200, WP011 00).
	FABRICATE FROM 6061-T6511, QQ-A-200/8 ALUMINUM ALLOY, 47.00 X 0.75 X 2.00 BAR STOCK.
	NSN 1730-00-963-5987, F-4 WING/FUSELAGE JACK PAD.

Figure 1. Free Play Inspection (Sheet 5)

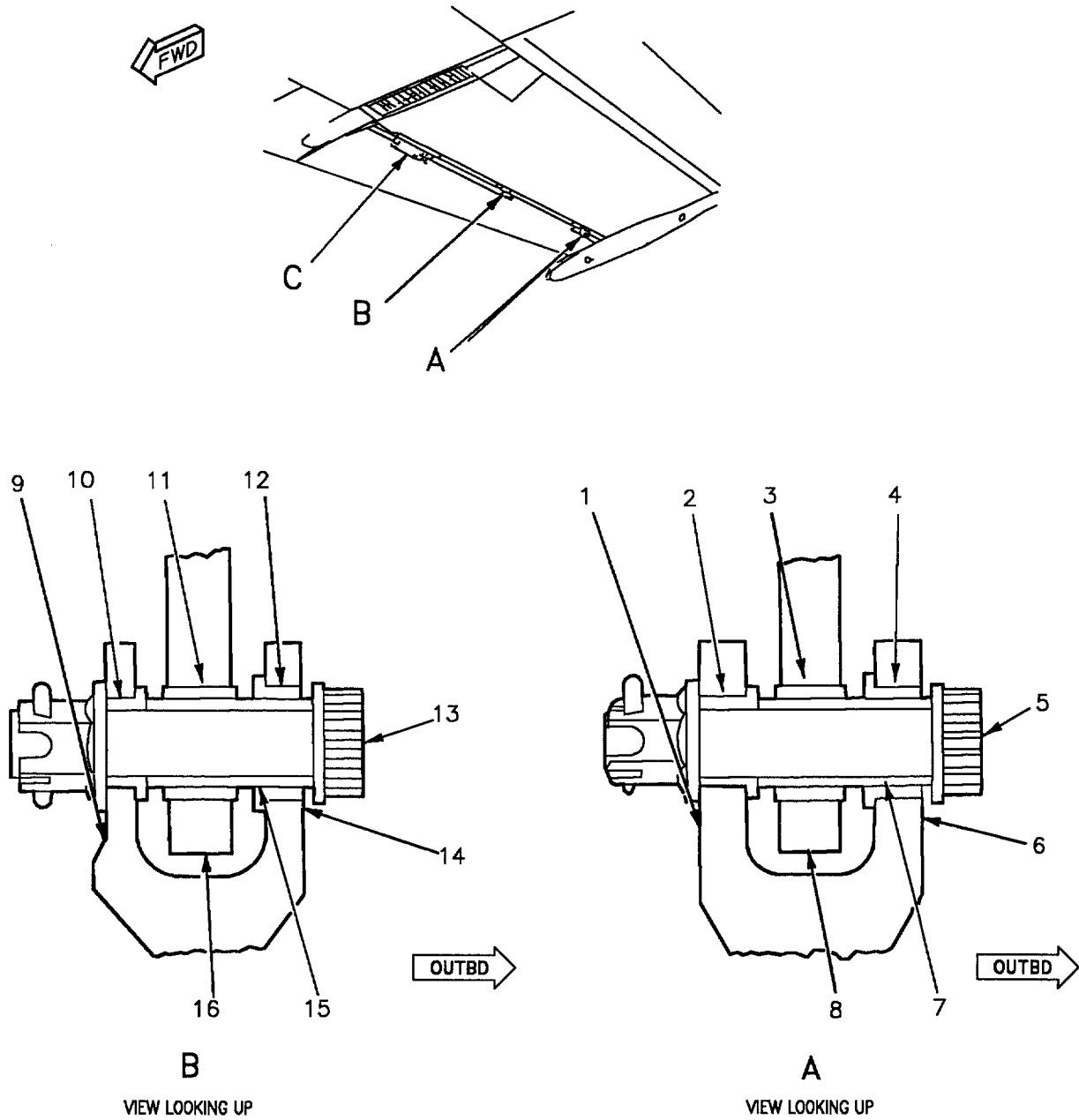


Figure 2. Wear Tolerances (Sheet 1)

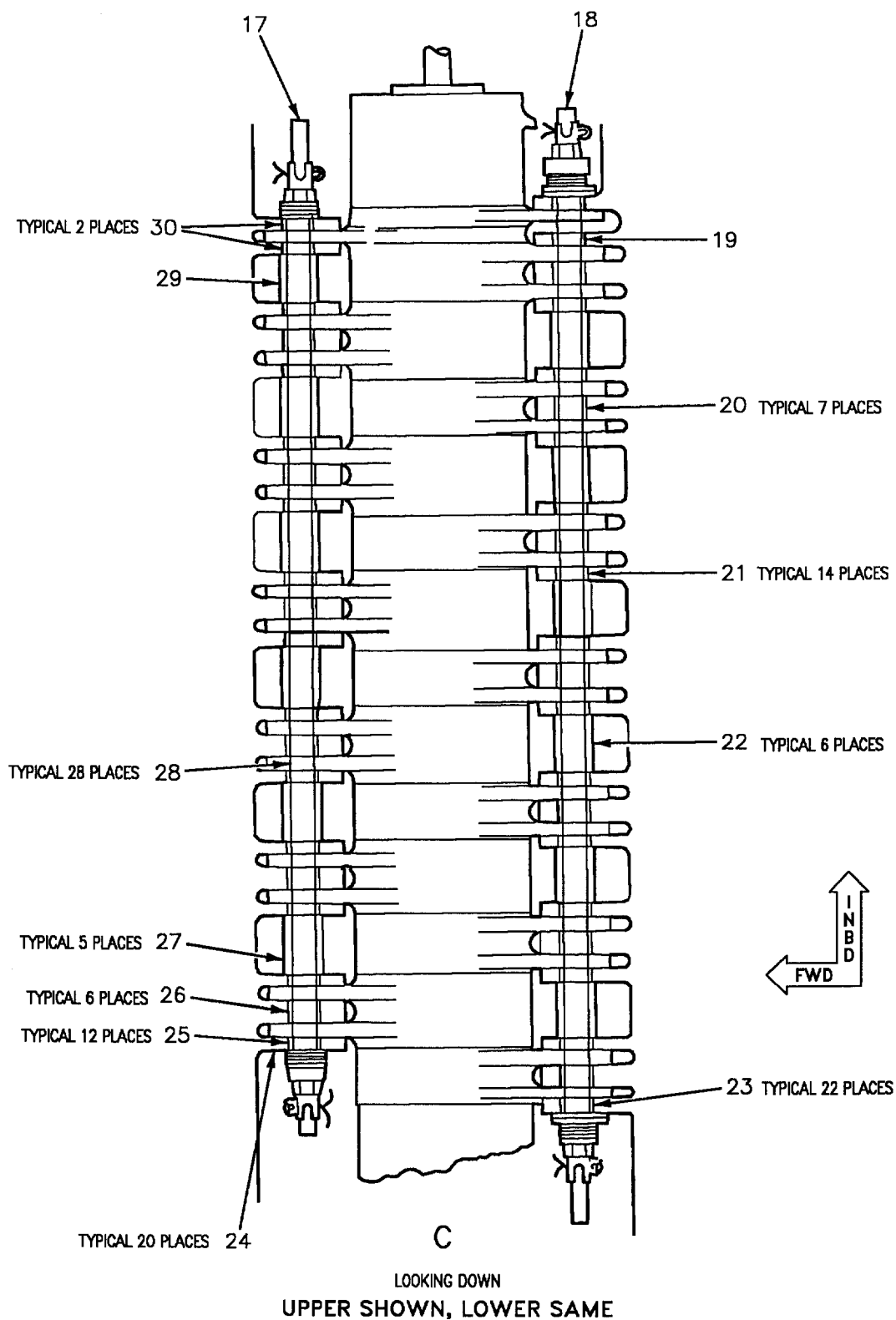





















Figure 2. Wear Tolerances (Sheet 2)



DET	IDX NO.	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE
A	1	74A150679	HINGE HALF	0.5000+0.0005-0.005	[13]
	2	[1] ST4M139BC6-25	BUSHING	0.3750+0.0010-0.0000 ID 0.5023+0.000-0.0007 OD	[16] 0.3750+0.0013-0.0000 NA
		[2] ST4M130-06014	BUSHING	0.3750+0.0010-0.0000 ID	0.3750+0.0013-0.0000
	3	ST4M219-07001	BUSHING	0.5015+0.0007-0.0000 ID 0.6245+0.0000-0.0010 OD	[11] 0.5015+0.0015-0.0000 NA
	4	[3] ST4M139BC8-25	BUSHING	0.5005+0.0007-0.0000 ID 0.6275+0.0000-0.0008 OD	[16] 0.5005+0.0014-0.0000 NA
		[4] ST4M130-08012	BUSHING	0.5005+0.0007-0.0000 ID 0.6275+0.0000-0.0008 OD	[16] 0.5005+0.0014-0.0000 NA
	5	ST3M744-6D22	BOLT	0.3745+0.0000-0.0005 OD	[13] [12]
	6	74A150679	HINGE HALF	0.6250+0.0005-0.0005	[13]
B	7	ST4M166-6-015	BUSHING	0.3750+0.0010-0.0000 ID 0.4990+0.0000-0.0005 OD	[12] 0.3750+0.0020-0.0000 [12] 0.4990+0.0000-0.0008
	8	[5] 74A190815	SPAR	0.6250+0.0022-0.0000 ID	[13] [14]
		[6] 74A190854	SPAR	0.6250+0.0022-0.0000 ID	[13] [14]
	9	74A150678	HINGE HALF	0.5000+0.0005-0.0005	[13]
	10	[7] ST4M139BC6-14	BUSHING	0.3750+0.0010-0.0000 ID 0.5023+0.0000-0.0007 OD	[16] 0.3750+0.0013-0.0000 NA
		[8] ST4M130-06013	BUSHING	0.3750+0.0010-0.0000 ID 0.5023+0.0000-0.0007 OD	[16] 0.3750+0.0013-0.0000 NA
	11	ST4M219-07001	BUSHING	0.5015+0.0007-0.0000 ID 0.6245+0.0000-0.0010 OD	[11] 0.5015+0.0015-0.0000 NA
	12	ST4M139BC8-18	BUSHING	0.5005+0.0007-0.0000 ID 0.6275+0.0000-0.0008 OD	[16] 0.0005+0.0014-0.0000 NA
C	13	ST3M744-6D19	BOLT	0.3745+0.0000-0.0005	[13] [12]
	14	74A150678	HINGE HALF	0.6250+0.0005-0.0005 ID	[13]
	15	ST4M166-6-014	BUSHING	0.3750+0.0010-0.0000 ID 0.4990+0.0000-0.0005 OD	[12] 0.3750+0.0020-0.0000 [12] 0.4990+0.0000-0.0018
	16	[5] 74A190815	SPAR	0.6250+0.0022-0.0000 ID	[13] [14]
		[6] 74A190854	SPAR	0.6250+0.0022-0.0000 ID	[13] [14]
	17	[6] 74670059-105 [6] 74670059-109	ROD	0.3435+0.0005-0.0000	[15]
	18	[6] 74670059-107 [6] 74670059-111	ROD	0.3435+0.0005-0.0000	[15]
	19	74A150786-2001	BUSHING	0.3435+0.0007-0.0000 ID 0.4655+0.0050-0.0050 OD	[16] 0.3435+0.0014-0.0000 NA
		4M267-07001	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	[16] 0.3435+0.0014-0.0000 NA
	20	ST4M219-05003	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	[16] 0.3435+0.0014-0.0000 NA
	21	ST4M219-05004	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	[16] 0.3435+0.0014-0.0000 NA

Figure 2. Wear Tolerances (Sheet 3)

DET	IDX NO.	PART NUMBER	PART NAME	IN SERVICE TOLERANCE	
				MANUFACTURING TOLERANCES	CLEARANCE
C	22	4M106-05013	BUSHING	0.3480+0.0060-0.0000 ID 0.4520+0.0000-0.0005 OD	 0.3480+0.0070-0.0000 NA
	23	74A150602	FWD SPAR HINGE HALF	0.4665+0.0022-0.0000	
	24	 74A190815	SPAR HINGE HALF	0.4665+0.0022-0.0000	 
		 74A190854	SPAR HINGE HALF	0.4665+0.0022-0.0000	 
	25	 ST4M219-05002	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	 0.3435+0.0014-0.0000 NA
		 ST4M219-05015	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	 0.3435+0.0014-0.0000 NA
	26	ST4M219-05003	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	 0.3435+0.0014-0.0000 NA
	27	4M106-05013	BUSHING	0.3480+0.0060-0.0000 ID 0.4520+0.0000-0.0005 OD	 0.3480+0.0070-0.0000 NA
	28	2022638	TRANSMISSION	0.3435+0.0000-0.0005	0.3435+0.0010-0.0005
	29	4M106-05014	BUSHING	0.3480+0.0060-0.0000 ID 0.4520+0.0000-0.0005 OD	 0.3480+0.0070-0.0000 NA
	30	 ST4M219-05001	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	 0.3435+0.0014-0.0000 NA
		 ST4M219-05016	BUSHING	0.3435+0.0007-0.0000 ID 0.4660+0.0000-0.0010 OD	 0.3435+0.0014-0.0000 NA

## LEGEND

















-  161353 THRU 161944
-  161945 AND UP
-  161353 THRU 161721 161945 AND UP
-  161722 THRU 161944
-  161353 THRU 161519
-  161520 AND UP
-  161353 THRU 161721
-  161722 AND UP
-  161353 THRU 161528
-  161702 AND UP
-  REPLACE PER (WPO15 04) WHEN TOLERANCE EXCEEDED
-  REPLACE WHEN TOLERANCE EXCEEDED.
-  NONE ALLOWED
-  REPAIR PER (WPO15 04) WHEN TOLERANCE EXCEEDED
-  ROD IS EXPANDABLE
-  WEAR LIMITS SHOWN IN THIS CHART HAVE BEEN DETERMINED CONSIDERING THE WORST CASE CONDITIONS. IF THE FORCE MATE OR PRESS FIT BUSHINGS ARE BEYOND THE WEAR LIMITS LISTED, CHECK THE FREEPLAY TEST FIRST BEFORE REPLACING. IF THE FREEPLAY TEST CAN BE PASSED, DO NOT REPLACE THE BUSHINGS.

Figure 2. Wear Tolerances (Sheet 4)

DEPOT MAINTENANCE  
STRUCTURE REPAIR  
MAINTENANCE FIXTURE RE174190203  
LOADING OUTBOARD LEADING EDGE FLAP

### Reference Material

None

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### Record of Applicable Technical Directives

None

#### 1. DESCRIPTION.

#### Support Equipment Required

2. The outboard leading edge flap maintenance fixture (fixture) is used to evaluate and repair the outboard leading edge flap (flap). The fixture contains locators for various details on the flap and supports to hold the flap in position during repair actions. The supports and locators also serve as gaging surfaces for damage inspection. The maintenance stands (stands) supports and position fixture. The fixture requires accurate leveling and verification, with an alignment kit, before use and should be gage recycled with aileron shroud alignment kit to verify fixture remains accurate.

None

#### Materials Required

None

a. Hoist stands with an overhead hoist attached to hoist fitting (detail 128).

b. Position stands as below:

3. INSTALLATION OF MAINTENANCE STANDS FOR USE WITH OUTBOARD LEADING EDGE FLAP MAINTENANCE FIXTURE. See figure 1.

(1) Center stud bolts (detail 121) in slot in plate (detail 13C), view B.

(2) Distance between indentations in heads of stud bolts (detail 121) is 97 inches plus or minus 1 inch.

(3) Align centerline of spindles (detail 13) in line within 1.5 degrees of each other.

c. Anchor each stand to floor with six 3/8 inch bolts.

d. Disengage L-pin (detail 14) from spindles (detail 13). Rotate spindles (detail 13) until plate (detail 13C) is parallel to floor with head of stud bolt (detail 121) up.

e. Reengage L-pin (detail 14) with spindles (detail 13).

## WARNING

Inspect L-pins (detail 14) on maintenance stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

f. Support the adjustable support (detail 12) with an overhead hoist attached to hoist fitting (detail 128),

remove cotter pin (detail 110), nut (detail 111), washer (detail 112) from T-pin (detail 108), view C.

g. Remove T-pin (detail 108) from adjustable support (detail 12) and lower support (detail 11), view C.

h. Raise adjustable support (detail 12) until the upper surface of the plate (detail 13C) is 44.0 inches above floor. Re-install T-pin (detail 108) into lower support (detail 11) and adjustable support (detail 12), view C.

i. Install washer (detail 112), two nuts (detail 111) on T-pin (detail 108), tighten nuts (detail 111) and install cotter pin (detail 110), view C.

j. Loosen jamnut (detail 115) and nut (detail 116) on eyebolt (detail 119), rotate eyebolt (detail 119) clear of plate (detail 13C), view A.

k. Swing upper plate (detail 101) clear of plate (detail 13C), view D.

l. Loosen jamnut (detail 115) and adjust nut (detail 114) to obtain a 0.40 inch preload dimension on disc springs (detail 117) two places each stand, view D.

m. Tighten jamnut (detail 115) after preload dimension is reached, two places each stand, view D.

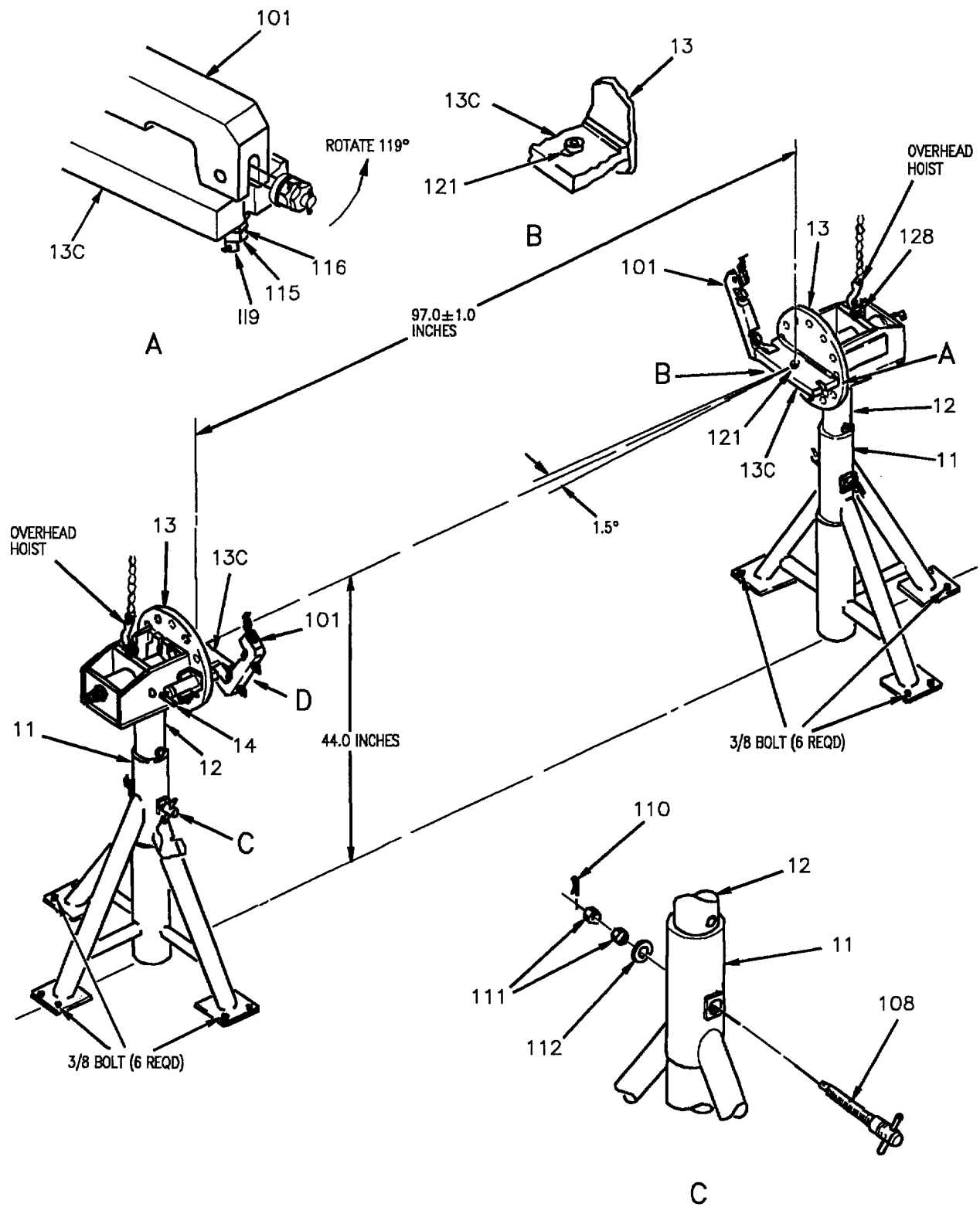


Figure 1. Installation of Maintenance Stands (Sheet 1)

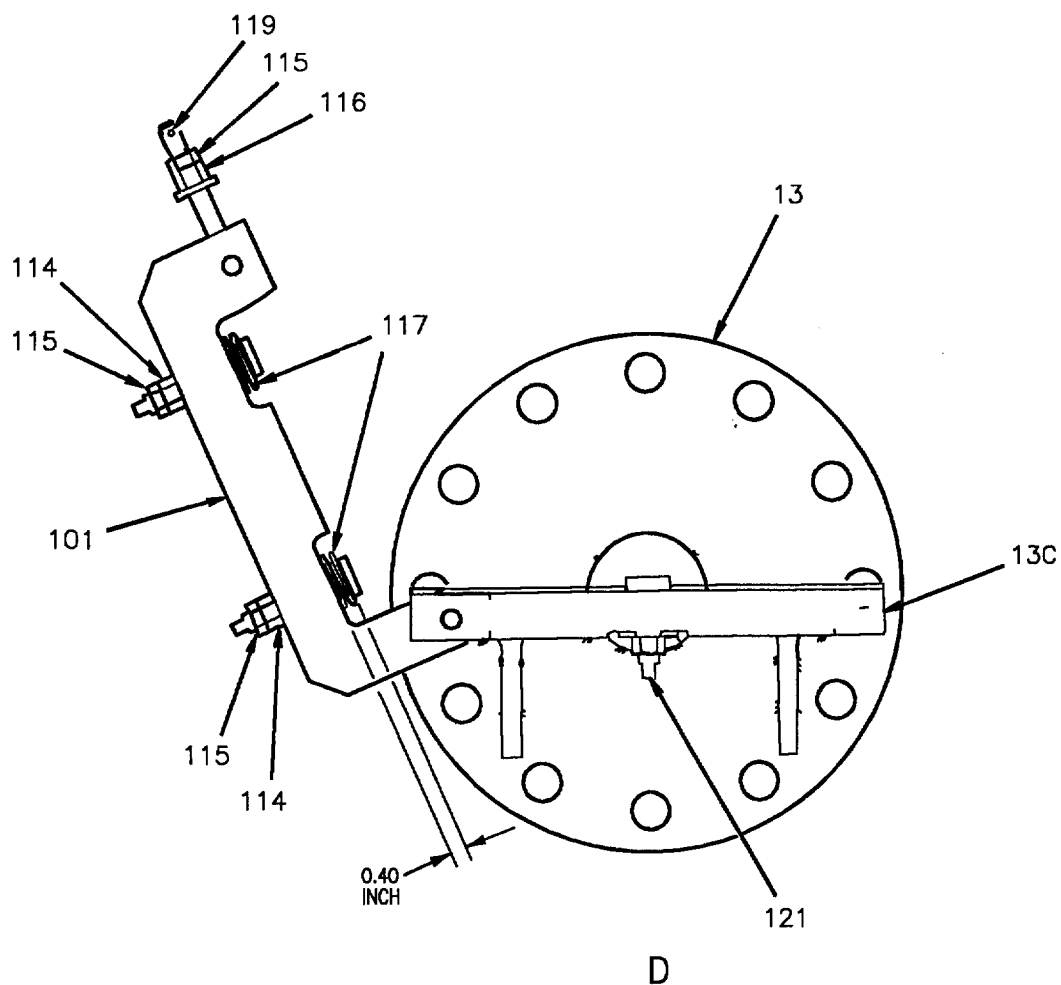


Figure 1. Installation of Maintenance Stands (Sheet 2)

Detail No.	Name	Function
11	Lower support	Supports maintenance fixture.
12	Adjustable support	Supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
108	T-Pin	Locates details 11 and 12.
110	Cotter pin	Secures detail 108 in place.
111	Nut	Secures detail 108 in place.
112	Washer	Secures detail 108 in place.
114	Nut	Adjusts preload dimension for detail 117.
115	Jamnut	Secures details 114 and 116 in place.
116	Nut	Secures detail 119 in place.
117	Disc spring	Used for preload dimension.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.
128	Hoist fitting	Support maintenance stands while hoisting.

Figure 1. Installation of Maintenance Stands (Sheet 3)

4. INSTALLATION OF MAINTENANCE FIXTURE  
INTO MAINTENANCE STANDS. See figure 2.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Alignment Set	AK174190203-1

Materials Required

None

a. Hoist maintenance fixture (fixture) in the horizontal position with an overhead hoist attached to four hoist fittings (detail 101) on fixture.

**WARNING**

Inspect L-pins (detail 14) on maintenance

stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to fixture.

b. Lower fixture aligning counter bores in end plates (detail 11L) on fixture with stud bolt (detail 121) on stands, view A.

c. Swing upper plate (detail 101) on stand over end plate (detail 11L) on fixture, view A.

d. Swing eyebolt (detail 119) down into slot in plate (detail 13C), tighten nut (detail 116) clamping fixture to stand and tighten jamnut (detail 115) to lock nut (detail 116) in place, view A.

e. Disconnect overhead hoist from four hoist fittings (detail 101) on fixture.

f. Rotate fixture, check to make sure it clears floor and stands.

g. Remove four hoist fittings (detail 101).

h. Rig and align the fixture by installing the maintenance fixture alignment set.



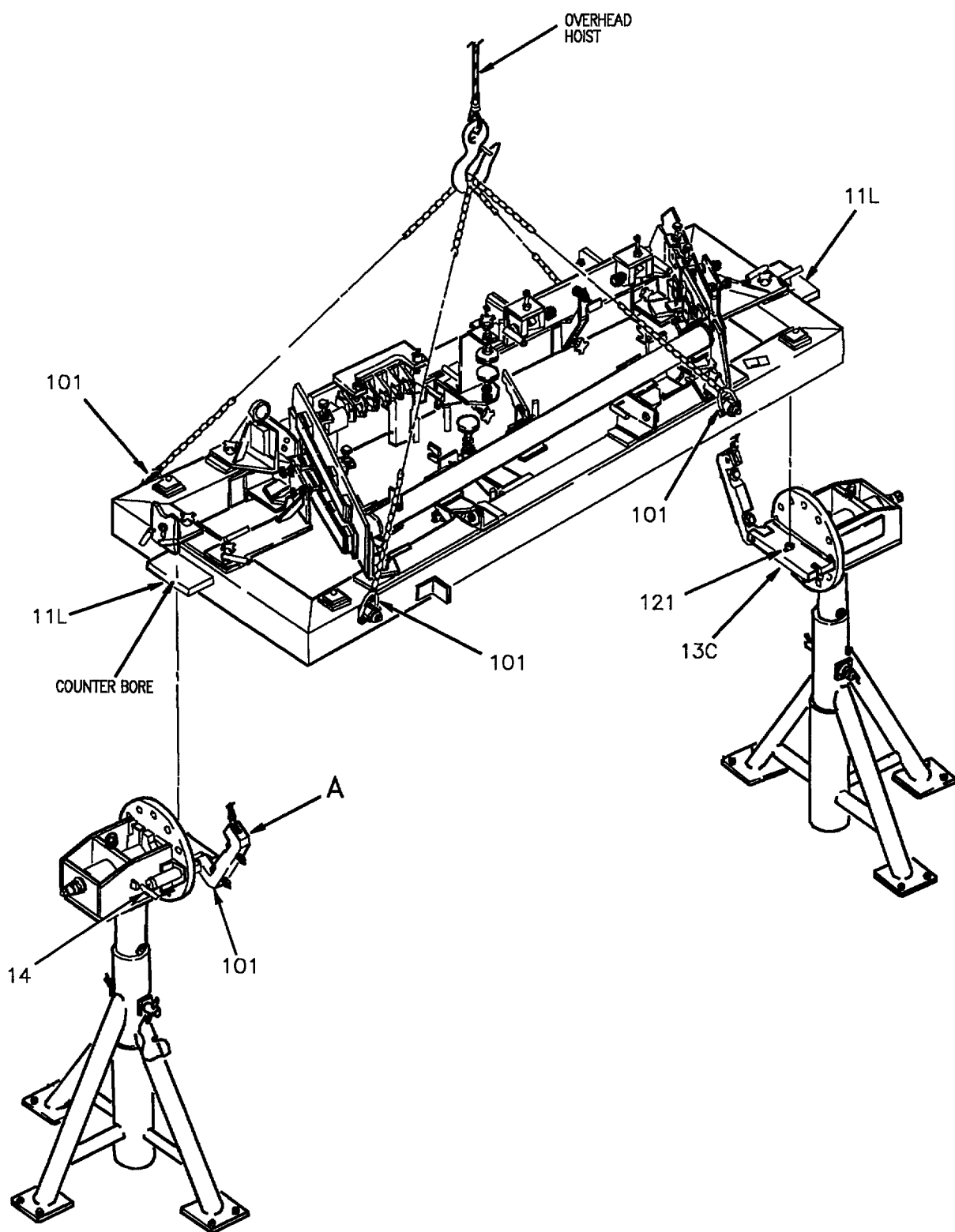


Figure 2. Installation of Maintenance Fixture (Sheet 1)

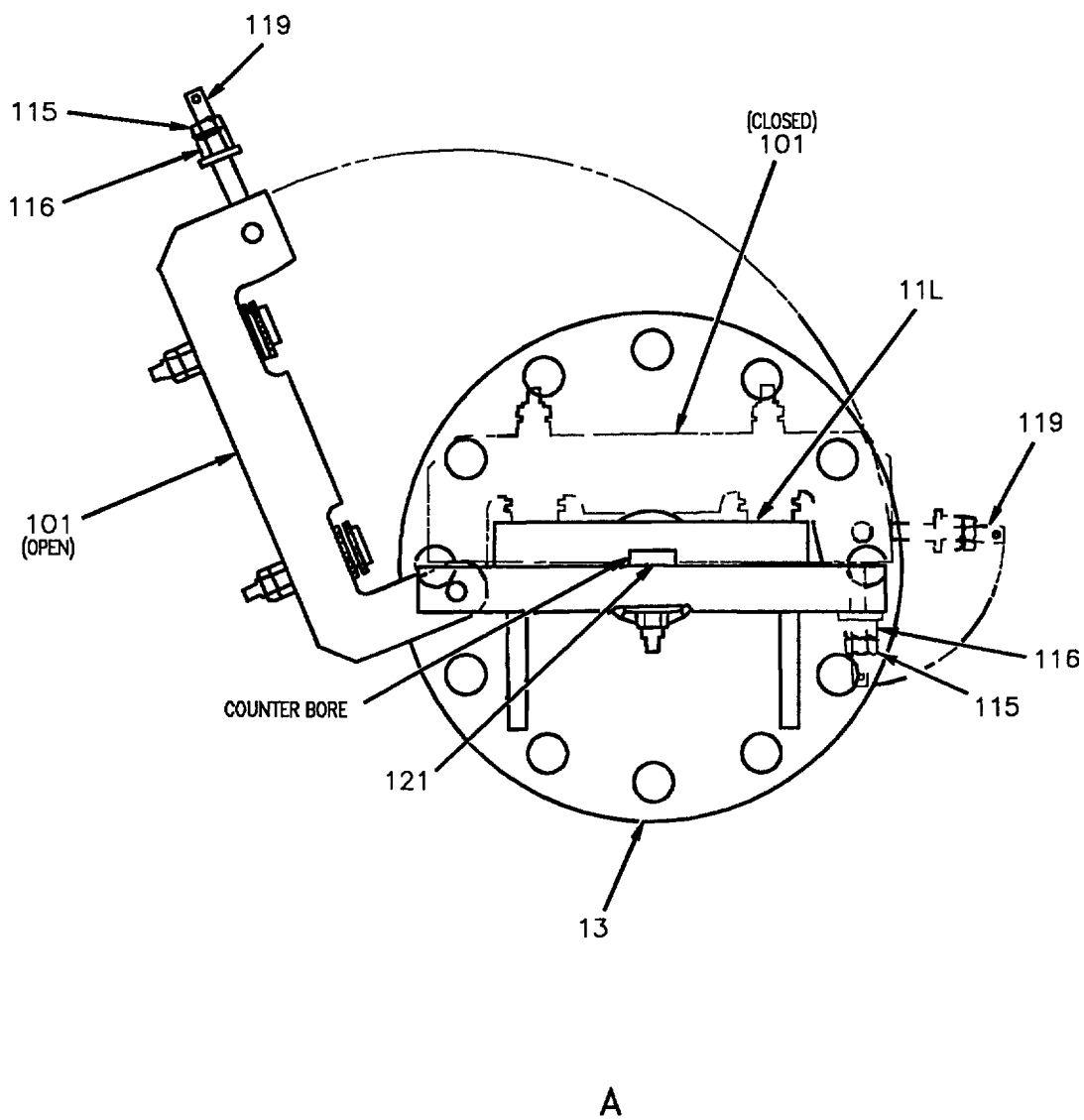


Figure 2. Installation of Maintenance Fixture (Sheet 2)

Detail No.	Name	Function
11L	End plate	Aligns and supports maintenance fixture.
13	Spindle	Supports and rotates maintenance fixture.
13C	Plate	Supports and positions maintenance fixture.
14	L-Pin	Locates detail 13.
101	Upper plate	Secures maintenance fixture in place.
101	Hoist fitting	Supports maintenance fixture while hoisting.
115	Jamnut	Secures detail 116 in place.
116	Nut	Secures detail 119 in place.
119	Eye bolt	Secures detail 101.
121	Stud bolt	Aligns maintenance fixture.

Figure 2. Installation of Maintenance Fixture (Sheet 3)

## 5. INSTALLATION OF OUTBOARD LEADING EDGE FLAP INTO MAINTENANCE FIXTURE (UNDAMAGED TRANSMISSION AND IDLER BUSHINGS). See figure 3.

### Support Equipment Required

None

### Materials Required

None

### NOTE

Location numbers are painted on fixture and various details. These numbers are not detail numbers and are used only to locate various details on fixture.

a. Rotate maintenance fixture (fixture) to horizontal position (parallel to floor) with construction balls up and install L-pin (detail 14) into spindle (detail 13) on maintenance stands (stands).

### WARNING

Inspect L-pins (detail 14) on stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to outboard leading edge flap (flap) or fixture.

b. Retract contour boards (details 132, 133, and 134) by removing two L-pins (detail 110) from support (detail 12) and plate (detail 128). Rotate support (detail 12) out and down until hole in plate (detail 12E) aligns with hole in angle bracket (detail 137). Insert L-pin (detail 138) through angle bracket (detail 137) and plate (detail 12E) locking support (detail 12) in the retracted position, view E.

c. Remove support (detail 18) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

d. Remove support (detail 21) by removing hand knob (detail 109) and two L-pins (detail 110) or retract thumbscrews (detail 23), views A and G.

e. Remove support (detail 25) by removing hand knob (detail 109) and two L-pins (detail 110) or retract thumbscrews (detail 29), view A and G.

f. Remove support (detail 17) and clamp (detail 30) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

g. Remove support (detail 17) and clamp (detail 48) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

h. Remove support (detail 32) by removing hand knob (detail 156), view A.

i. Retract support (detail 34) by removing two L-pins (detail 176) from holes in angle bracket (detail 174). Swing support (detail 34) up and out, reinstall two L-pins (detail 176) in outboard holes in angle bracket (detail 174) to lock support (detail 34) in a retracted position.

j. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Rotate support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support (detail 36) to lock support (detail 36) in retracted position.

k. Remove upper contour board (detail 103) by removing two hand knobs (detail 109) and two L-pins (detail 110), view A.

l. Remove upper contour board (detail 123) by removing two hand knobs (detail 109) and two L-pins (detail 110), view A.

m. Retract stud (detail 142) by turning upper knurled nut (detail 141) down into support (detail 19) to lower knurled nut (detail 141), view A.

n. Retract stud (detail 142) by turning upper knurled nut (detail 141) down into support (detail 20) to lower knurled nut (detail 141), view A.

o. Install two drill bushings (detail 234) into each of six drill guides (details 37, 38, 39 and 40), view C per steps below:

p. Install drill guide (detail 42) on support (detail 36) with two hand knobs (detail 225), view B.

(1) Loosen screw (detail 180).

(2) Rotate retainer (detail 188) until clear, insert drill bushings (detail 234) into drill guides (details 37, 38, 39, and 40).

(3) Rotate retainer (detail 188) to retain drill bushings (detail 234) and tighten screw (detail 180).

q. Install drill bushing (detail 239) into liner bushing (detail 175), view D.

r. Prepare leading edge flap (flap) for loading into fixture by substeps below:

(1) Remove upper seal 74A190823.

(2) Remove lower seal 74A190824.

#### NOTE

If replacement of leading edge skin is required, do substep (3).

(3) Remove leading edge skin 74A190849.

s. Load flap into fixture, resting flap on lower contour boards (detail 104 and 124), view F.

t. Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect two flap idler lugs are in position with support (detail 34), views F, G and K.

u. Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place, views F and G.

v. Remove two T-pins (detail 252) from support (detail 35) and rotate support (detail 36) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40), views F, H and J.

w. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place, views F and J.

x. Position flap in fixture inboard and outboard by locator (detail 195) between first two flap transmission lugs, view H.

y. Install support (detail 21) with two L-pins (detail 110) and hand knob (detail 109), view G.

z. Install support (detail 25) with two L-pins (detail 110) and hand knob (detail 109), view G.

aa. Attach handle (detail 45) to pin (detail 227) and install pin (detail 227) through upper hole in drill guide (detail 42), drill bushing (detail 234) in drill guides (details 37, 38, 39, and 40) and upper flap transmission lugs, view J.

ab. Remove handle (detail 45) from upper pin (detail 227) and attach handle (detail 45) to pin (detail 227).

ac. Install pin (detail 227) through lower hole in drill guide (detail 42), drill bushing (detail 234) in drill guides (details 37, 38, 39, and 40) and lower flap transmission lugs, view J.

ad. Remove handle (detail 45) from lower pin (detail 227).

ae. Install L-pins (detail 27) through drill bushing (detail 239) and flap idler lugs. Tighten drill guide (detail 192) until flap idler lugs are tight against drill guide (detail 192), view K.

af. Install upper contour board (detail 103) with two L-pins (detail 110) and two hand knobs (detail 109), view G.

ag. Install upper contour board (detail 123) with two L-pins (detail 110) and two hand knobs (detail 109), view G.

ah. Install support (detail 18) with two L-pins (detail 110) and hand knob (detail 145), views A and G.

ai. Install support (detail 32) by aligning dowel pins (details 157 and 158) with support (detail 32) and installing hand knob (detail 156), views A and L.

aj. Raise pad (detail 144) at support (detail 19) to support flap by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), view A.

ak. Raise pad (detail 144) at support (detail 20) to support flap by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), views A and F.

al. Adjust thumb screw (detail 31) on support (detail 32) against rear spar of flap, lock in place with knurled nut (detail 118), view L.

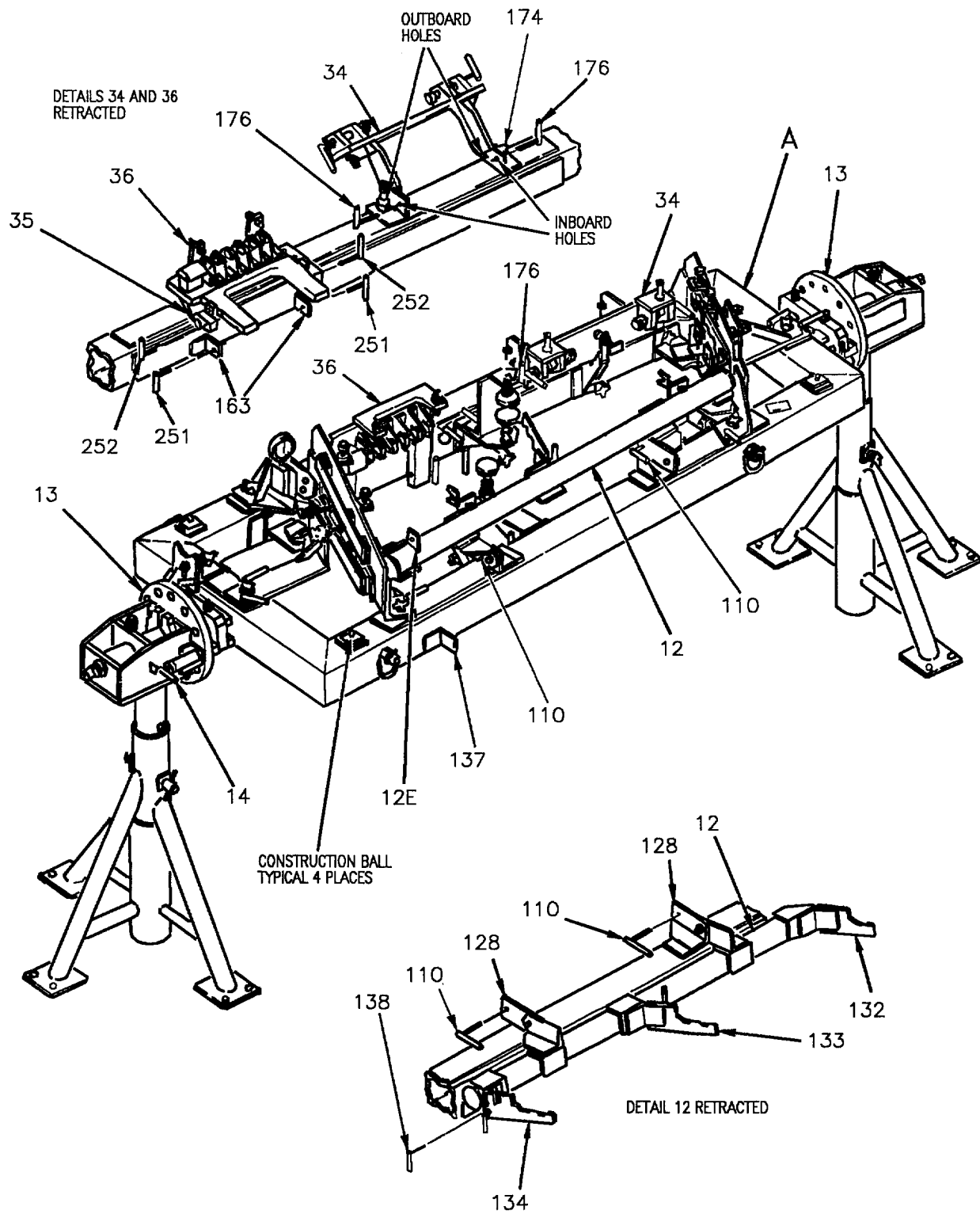
am. Lower pad (detail 144) at support (detail 18) to secure flap between pads (detail 144) at supports (details 18 and 19) by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), views A and G.

an. Adjust two thumbscrews (detail 29) on support (detail 25) against inboard rib of flap, lock in place with two knurled nuts (detail 118), view G.

ao. Adjust two thumbscrews (detail 23) on support (detail 21) against outboard rib of flap, lock in place with two knurled nuts (detail 118), view G.

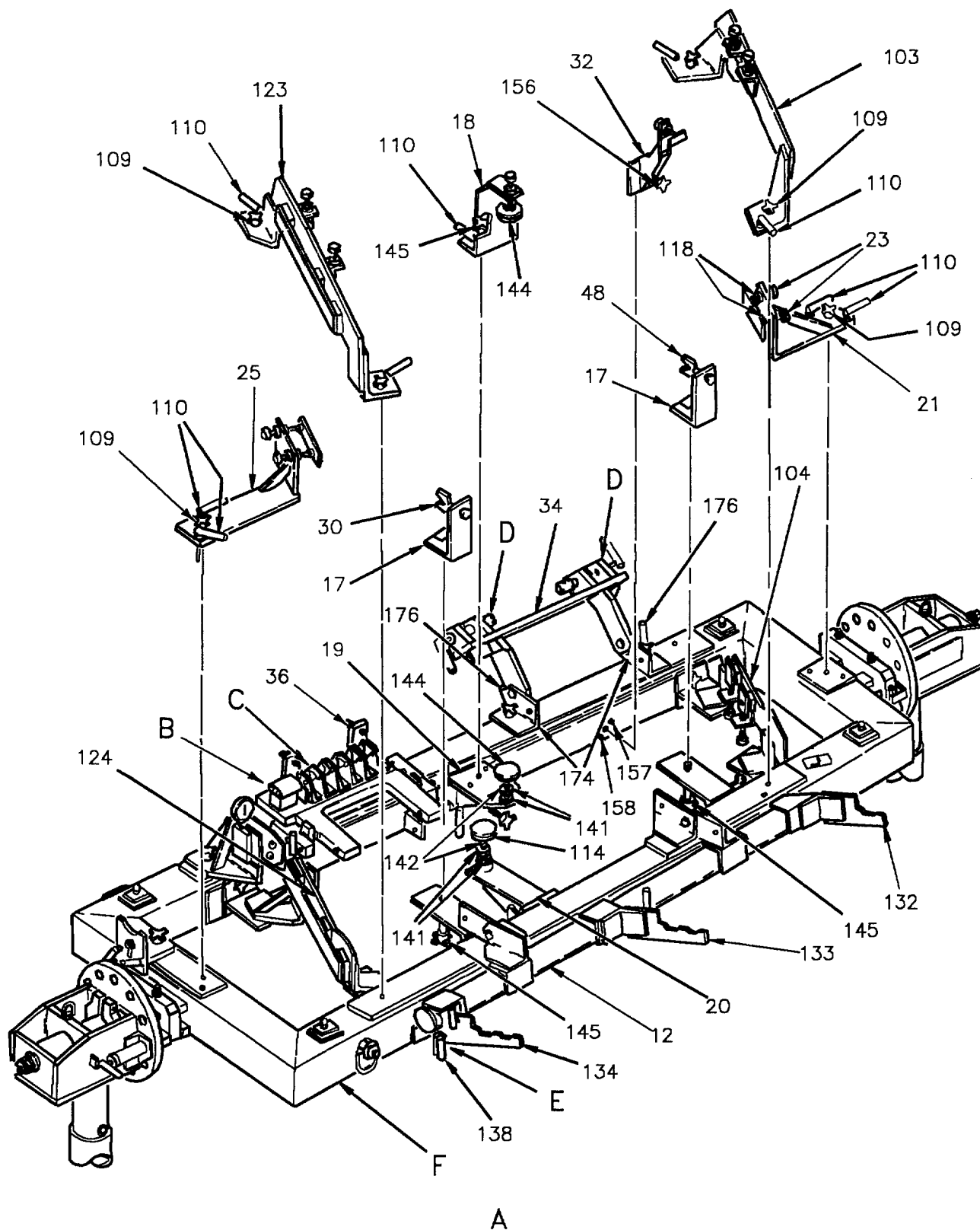
ap. Adjust four thumbscrews (detail 28) on upper and lower inboard contour boards (details 123 and 124) to secure flap in place, lock thumbscrew (detail 28) in place with four knurled nuts (detail 118), view G.

aq. Adjust four thumbscrews (detail 28) on upper and lower outboard contour boards (details 103 and 104) to secure flap in place, lock thumb screw (detail 28) in place with four knurled nuts (detail 118), view G.

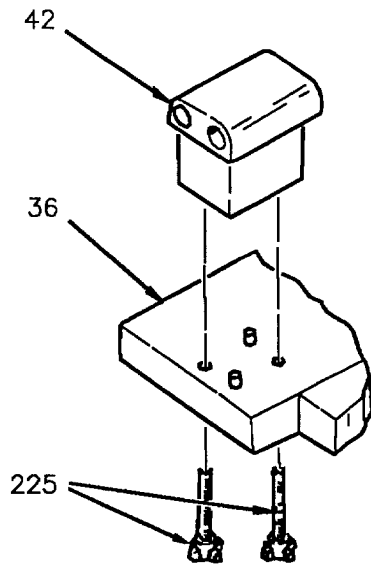


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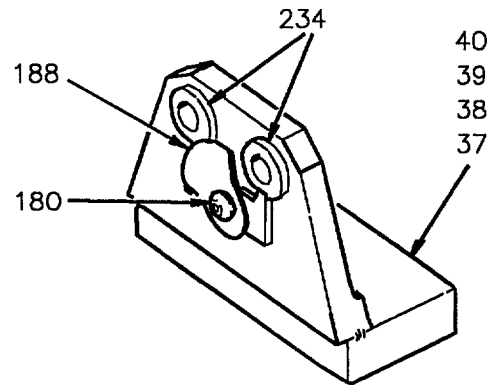
Figure 3. Installation of Flap with Undamaged Bushings into Fixture (Sheet 1)





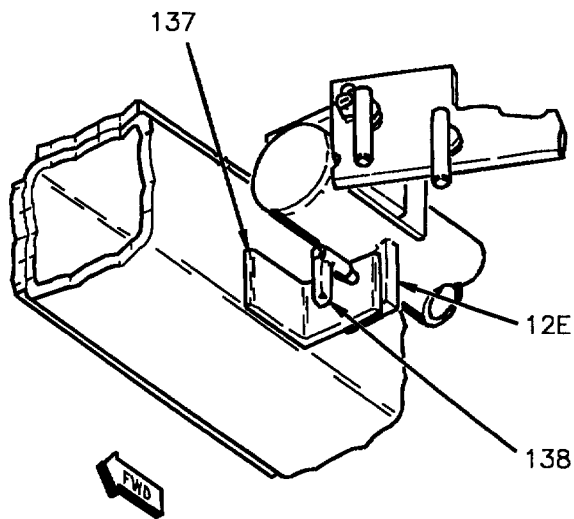


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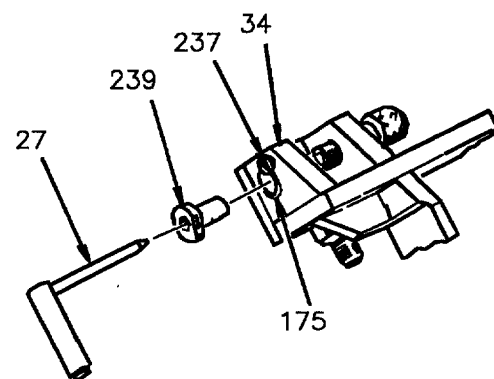


C

TYPICAL 6 PLACES



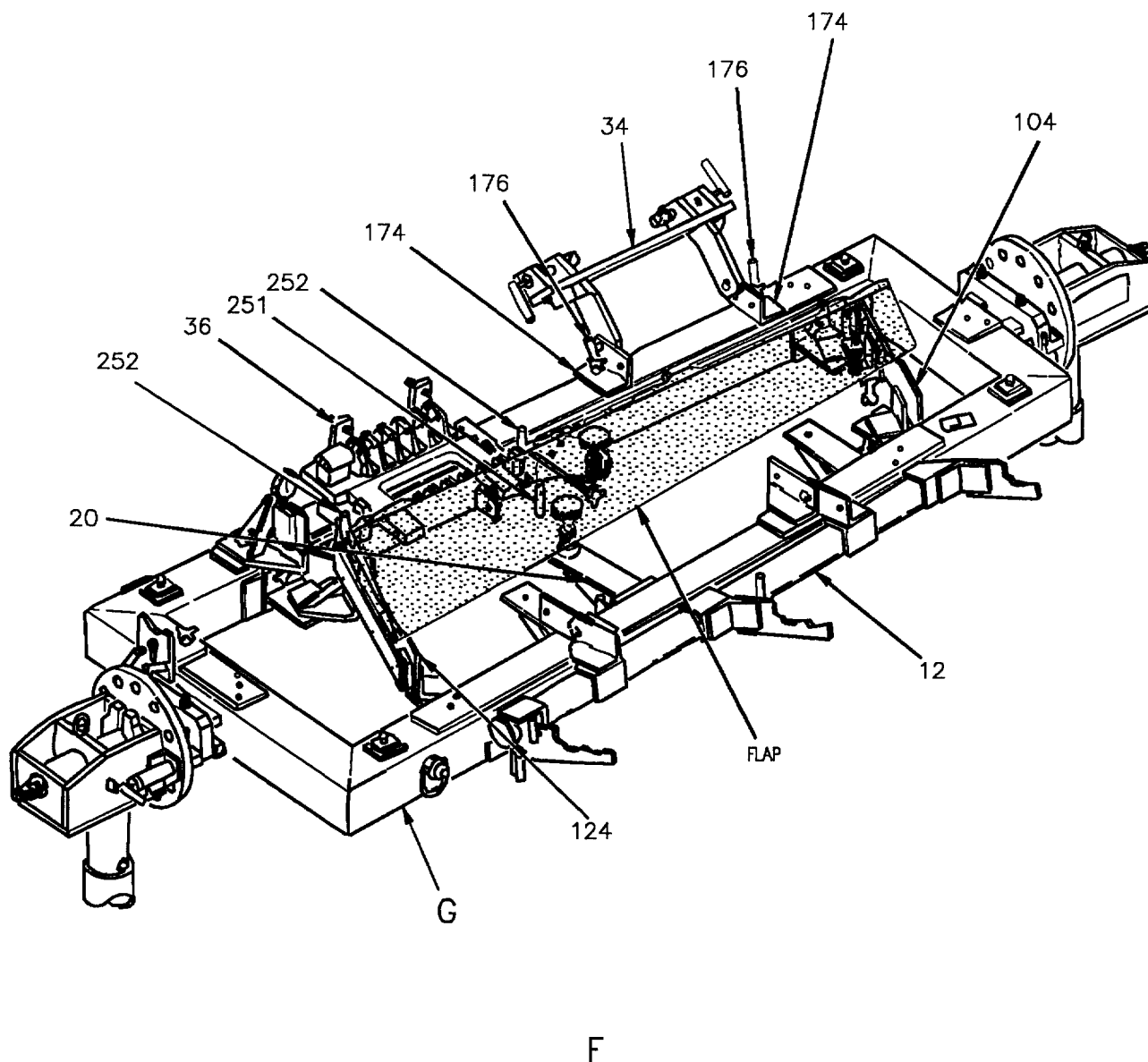
E



D

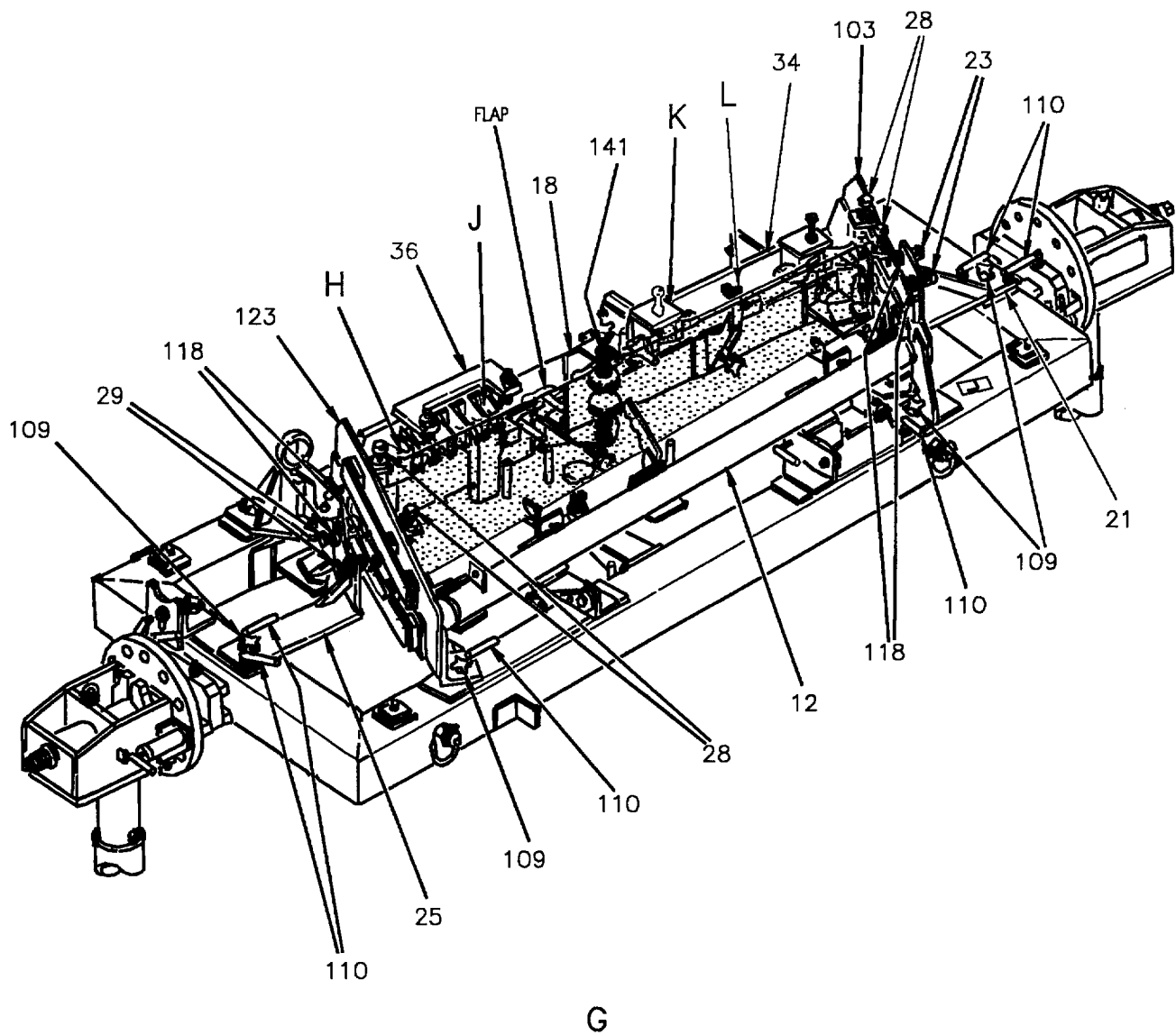
TYPICAL 2 PLACES

Figure 3. Installation of Flap with Undamaged Bushings into Fixture (Sheet 3)



15030304

Figure 3. Installation of Flap with Undamaged Bushings into Fixture (Sheet 4)



**Figure 3. Installation of Flap with Undamaged Bushings into Fixture (Sheet 5)**

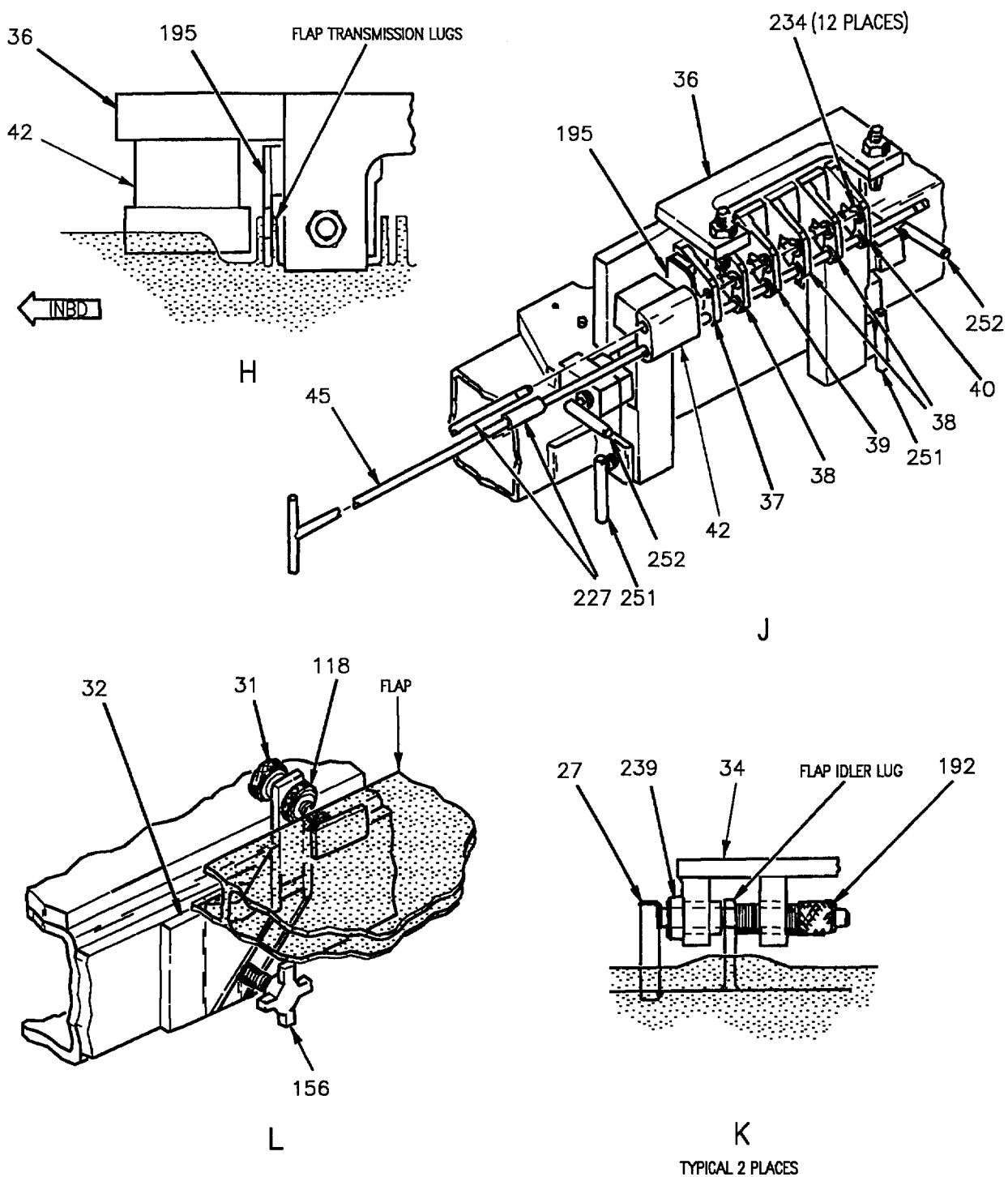


Figure 3. Installation of Flap with Undamaged Bushings into Fixture (Sheet 6)

Detail No.	Name	Function
12	Support	Supports and rotates details 132, 133 and 134.
12E	Plate	Supports detail 12 in retracted position.
13	Spindle	Supports and rotates maintenance fixture.
14	L-Pin	Locates detail 13.
17	Support	Supports details 30 and 48.
18	Support	Supports detail 144.
19	Support	Supports detail 144.
20	Support	Supports detail 144.
21	Support	Supports detail 23.
23	Thumbscrew	Secures flap in place.
25	Support	Supports detail 29.
27	L-Pin	Supports and aligns flap.
28	Thumbscrew	Secures flap in place.
29	Thumbscrew	Secures flap in place.
30	Clamp	Supports and aligns leading edge skin during replacement.
31	Thumbscrew	Secures flap in place.
32	Support	Supports detail 31.
34	Support	Supports and rotates details 27, 175, 192, 237 and 239.
35	Support	Supports detail 36.
36	Support	Supports and rotates details 37, 38, 39, 40 and 42.
37	Drill guide	Supports detail 234.
38	Drill guide	Supports detail 234.
39	Drill guide	Supports detail 234.
40	Drill guide	Supports detail 234.
42	Drill guide	Guides reamer into detail 234.
45	Handle	Guides detail 227 into detail 42 and 234 in details 37, 38, 39 and 40.
48	Clamp	Supports and aligns leading edge skin.
103	Contour board	Supports and aligns flap.
104	Contour board	Supports and aligns flap.
109	Hand knob	Secures details 21, 25, 103 and 123.
110	L-Pin	Locates details 12, 17, 18, 21, 25, 103 and 123.
118	Knurled nut	Locks details 23, 28, 29, and 31 in place.
123	Contour board	Supports and aligns flap.
124	Contour board	Supports and aligns flap.
128	Plate	Supports detail 12 in place.
132	Contour board	Supports and aligns flap.
133	Contour board	Supports and aligns flap.

Figure 3. Installation of Flap with Undamaged Bushings Into Fixture (Sheet 7)

Detail No.	Name	Function
134	Contour board	Supports and aligns flap.
137	Angle bracket	Supports detail 12 in retracted position.
138	L-Pin	Locates detail 12.
141	Knurled nut	Locks detail 144 in place.
142	Stud	Raises and lowers detail 144.
144	Pad	Supports flap.
145	Hand knob	Secures detail 18.
156	Hand knob	Secures detail 32.
157	Dowel Pin	Aligns detail 32.
158	Dowel Pin	Aligns detail 32.
163	Angle bracket	Supports detail 36 in place.
174	Angle bracket	Supports detail 36 in place.
175	Liner bushing	Supports and aligns detail 239.
176	L-Pin	Locates detail 34.
180	Screw	Secures detail 188 in place.
188	Retainer	Retains detail 234.
192	Drill guide	Drill support for flap idler lug.
195	Locator	Positions flap in fixture.
225	Hand knob	Secures detail 42.
227	Pin	Locates flap in fixture.
234	Drill bushing	Guides reamer into flap transmission lugs.
237	Screw	Secures detail 175 in place.
239	Drill bushing	Guides drill into flap idler lug.
251	T-Pin	Locates detail 36.
252	T-Pin	Locates detail 36.

Figure 3. Installation of Flap with Undamaged Bushings Into Fixture (Sheet 8)

6. INSTALLATION OF OUTBOARD LEADING  
EDGE FLAP INTO MAINTENANCE FIXTURE  
(DAMAGED TRANSMISSION OR IDLER BUSH-  
INGS). See figure 4.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Repair Kit, Flap, LE Outboard	RE274190203-1

Materials Required

None

NOTE

Location numbers are painted on fixture and various details. These numbers are not detail numbers and are used only to locate various details on fixture.

a. Rotate maintenance fixture (fixture) to horizontal position (parallel to floor) with construction balls up and install L-pin (detail 14) into spindle (detail 13) on maintenance stands (stands).

**WARNING**

Inspect L-pins (detail 14) on stands to make sure they are fully engaged with spindle (detail 13). A disengaged spindle (detail 13) may rotate and could cause injury or damage to outboard leading edge flap (flap) or fixture.

b. Retract contour boards (details 132, 133, and 134) by removing two L-pins (detail 110) from support (detail 12) and plate (detail 128). Rotate support (detail 12) out and down until hole in plate (detail 12E) aligns with hole in angle bracket (detail 137). Insert L-pin (detail 138) through angle bracket (detail 137) and plate (detail 12E) locking support (detail 12) in the retracted position.

c. Remove support (detail 18) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

d. Remove support (detail 21) by removing hand knob (detail 109) and two L-pins (detail 110) or retract thumbscrews (detail 23), views A and G.

e. Remove support (detail 25) by removing hand knob (detail 109) and two L-pins (detail 110) or retract thumbscrews (detail 29), view A and G.

f. Remove support (detail 17) and clamp (detail 30) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

g. Remove support (detail 17) and clamp (detail 48) by removing hand knob (detail 145) and two L-pins (detail 110), view A.

h. Remove support (detail 32) by removing hand knob (detail 156), view A.

i. Retract support (detail 34) by removing two L-pins (detail 176) from holes in angle bracket (detail 174). Swing support (detail 34) up and out, reinstall two L-pins (detail 176) in outboard holes in angle bracket (detail 174) to lock support (detail 34) in a retracted position.

j. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Swing support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support, (detail 36) to lock support (detail 36) in retracted position.

k. Remove upper contour board (detail 103) by removing two hand knobs (detail 109) and two L-pins (detail 110), view A.

l. Remove upper contour board (detail 123) by removing two hand knobs (detail 109) and two L-pins (detail 110), view A.

m. Retract stud (detail 142) by turning upper knurled nut (detail 141) down into support (detail 19) to lower knurled nut (detail 141), view A.

n. Retract stud (detail 142) by turning upper knurled nut (detail 141) down into support (detail 20) to lower knurled nut (detail 141), view A.

o. Install drill guide (detail 43 or 44) on support (detail 36) with two hand knobs (detail 225), view B.

p. Install two drill bushings (detail 235 or 236) into each of six drill guides (details 37, 38, 39 and 40), view C per steps below:

(1) First oversize - Install two drill bushings (detail 235) from each of six drill guides (details 37, 38, 39, and 40).

(2) Second oversize - Install two drill bushings (detail 236) into each of six drill guides (details 37, 38, 39, and 40) per substeps below:

(a) Loosen screw (detail 180).

(b) Rotate retainer (detail 188) until clear, insert drill bushings (detail 235) into drill guides (details 37, 38, 39, and 40).

(c) Rotate retainer (detail 188) to retain drill bushings (detail 235) and tighten screw (detail 180).

q. Install liner bushing (detail 175) into support (detail 34) and install screw (detail 237) into support (detail 34) and tighten to retain liner bushing (detail 175), view D.

r. Install drill bushing (details 240, 241, or 242) into liner bushing (detail 175), view D per substeps below:

(1) First oversize - Install inboard drill guide (detail 241) and outboard drill guide (detail 241) into liner bushing (detail 175).

(2) Second oversize - Install inboard drill guide (detail 242) and outboard drill guide (detail 242) into liner bushing (detail 175).

s. Prepare leading edge flap (flap) for loading into fixture by substeps below:

(1) Remove upper seal 74A190823.

(2) Remove lower seal 74A190824.

#### NOTE

If replacement of leading edge skin is required, do substep (3).

(3) Remove leading edge skin 74A190849.

(4) Remove damaged transmission or idler bushings with bushing installation and removal tool set.

t. Load flap into fixture, resting flap on lower contour boards (details 104 and 124), view F.

u. Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings, (details 241 or 242), views F, G and K.

v. Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place, views F and G.

w. Remove two T-pins (detail 252) from support (detail 35) and rotate support (detail 36) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40), views F, G and J.

x. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place, views F and G.

y. Position flap in fixture inboard and outboard by locator (detail 195) between first two flap transmission lugs, view H.

z. Install support (detail 21) with two L-pins (detail 110) and hand knob (detail 109), view G.

aa. Install support (detail 25) with two L-pins (detail 110) and hand knob (detail 109), view G.

ab. Install two pins (details 243 or 228), view J per substeps below:

(1) First oversize - Using handle (detail 45) install two pins (detail 243) through drill guide (detail 43), drill guides (details 37, 38, 39, and 40) and upper and lower transmission lugs, view J.

(2) Second oversize - Using handle (detail 45) install two pins (detail 228) through drill guide (detail 44), drill bushings (detail 235) in drill guides (details 37, 38, 39, and 40) and upper and lower flap transmission lugs, view J.

ac. Install L-pin (details 47 or 46), view D per steps below:

(1) First oversize - Install L-pin (detail 47) through drill guide (detail 241) and flap idler lug. Tighten drill guide (detail 192) until flap idler is tight against drill guide (detail 192), view K.



(2) Second oversize - Install L-pin (detail 46) through drill guide (detail 242) and flap idler lug. Tighten drill guide (detail 192) until flap idler is tight against drill guide (detail 192), view K.

ad. Install upper contour board (detail 103) with two L-pins (detail 110) and two hand knobs (detail 109), view G.

ae. Install upper contour board (detail 123) with two L-pins (detail 110) and two hand knobs (detail 109), view G.

af. Install support (detail 18) with two L-pins (detail 110) and hand knob (detail 145), views A and G.

ag. Install support (detail 32) by aligning dowel pins (detail 157 and 158) with support (detail 32) and installing hand knob (detail 156), views A and L.

ah. Raise pad (detail 144) at support (detail 19) to support flap by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), view A.

ai. Raise pad (detail 144) at support (detail 20) to support flap by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), views A and F.

aj. Adjust thumb screw (detail 31) on support (detail 32) against rear spar of flap, lock in place with knurled nut (detail 118), view L.

ak. Lower pad (detail 144) at support (detail 18) to secure flap between pads (detail 144) at supports (details 18 and 19) by turning upper knurled nut (detail 141), lock in place with lower knurled nut (detail 141), views A and G.

al. Adjust two thumbscrews (detail 29) on support (detail 25) against inboard rib of flap, lock in place with two knurled nuts (detail 118), view G.

am. Adjust two thumbscrews (detail 23) on support (detail 21) against outboard rib of flap, lock in place with two knurled nuts (detail 118), view G.

an. Adjust four thumbscrews (detail 28) on upper and lower inboard contour boards (details 123 and 124) to secure flap in place, lock thumbscrew (detail

28) in place with four knurled nuts (detail 118), view G.

ao. Adjust four thumbscrews (detail 28) on upper and lower outboard contour boards (details 103 and 104) to secure flap in place with four knurled nuts (detail 118), view G.

ap. Remove L-pin (detail 138), rotate support (detail 12) up and in. Install two L-pins (detail 110) through support (detail 12) and plate (detail 128), view E.

aq. Install support (detail 17) and clamp (detail 30) by aligning support (detail 17) with two L-pins (detail 110) and installing hand knob (detail 145), view A.

ar. Install support (detail 17) and clamp (detail 48) by aligning support (detail 17) with two L-pins (detail 110) and installing hand knob (detail 145) if leading edge skin is in place, view A.

as. Inspect transmission pins (details 243 or 228) and idler L-pins (details 47 and 46) for free rotation to make sure flap is not twisted or deflected in fixture. When flap is found to be twisted or deflected in fixture, readjust knurled nut (detail 141) or thumbscrews (details 23, 28, 29, or 31), view J.

at. Inspect lug edge distance, views M and N per substeps below:

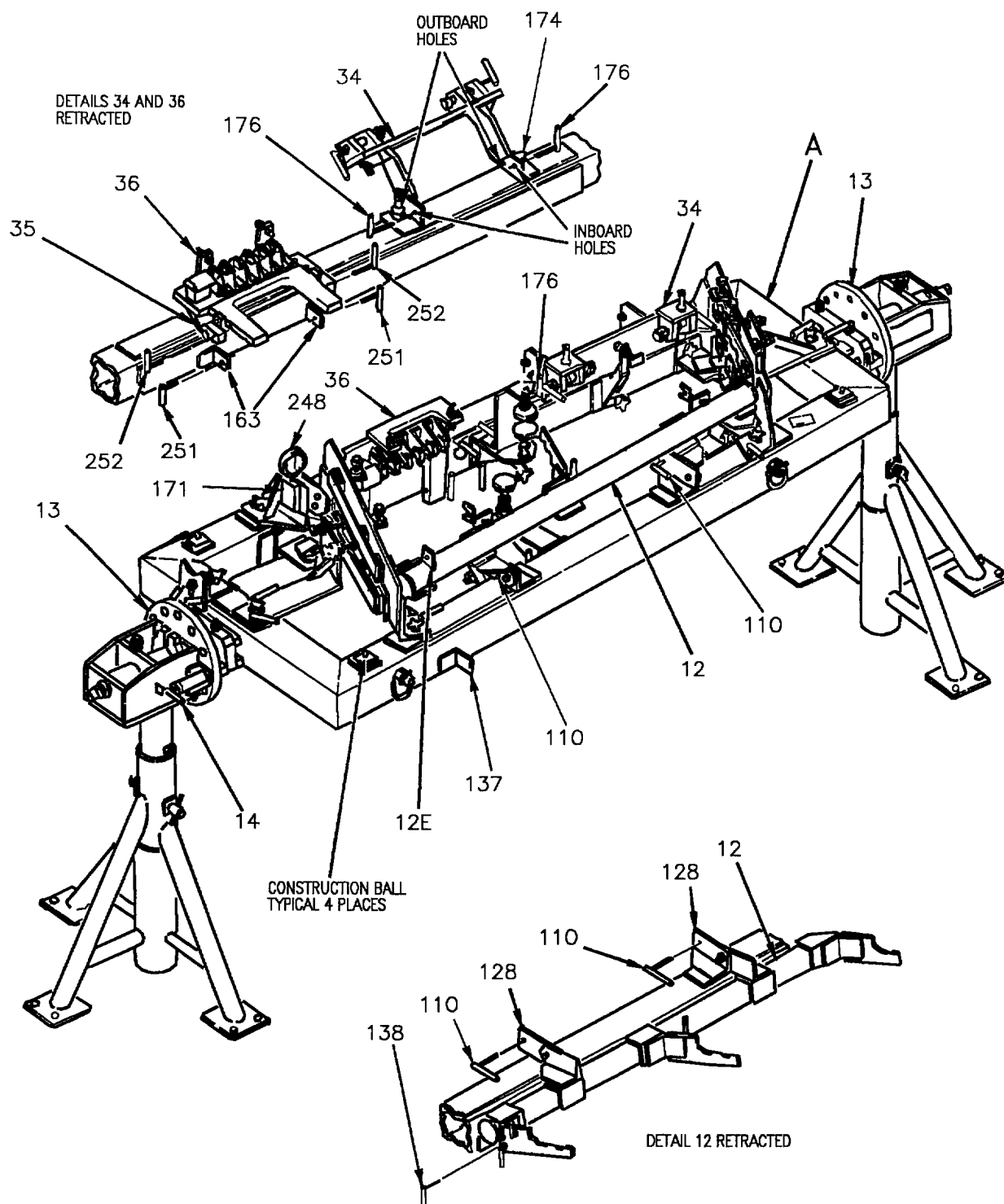
(1) Zero dial indicator (detail 248), with dial indicator (detail 248) installed in indicator set block (detail 171).

#### NOTE

Do inspection with dial indicator (detail 248) preset at 0.000 inch. Engineering disposition is required for any reading not within 0.000 +0.010 -0.010 inch.

(2) Inspect flap transmission lugs at six positions with dial indicator (detail 248) showing reading of 0.000 +0.010 -0.010 inch.

(3) Inspect flap idler lugs at four positions with dial indicator (detail 248) showing reading of 0.000 +0.010 -0.010 inch.



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Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 1)

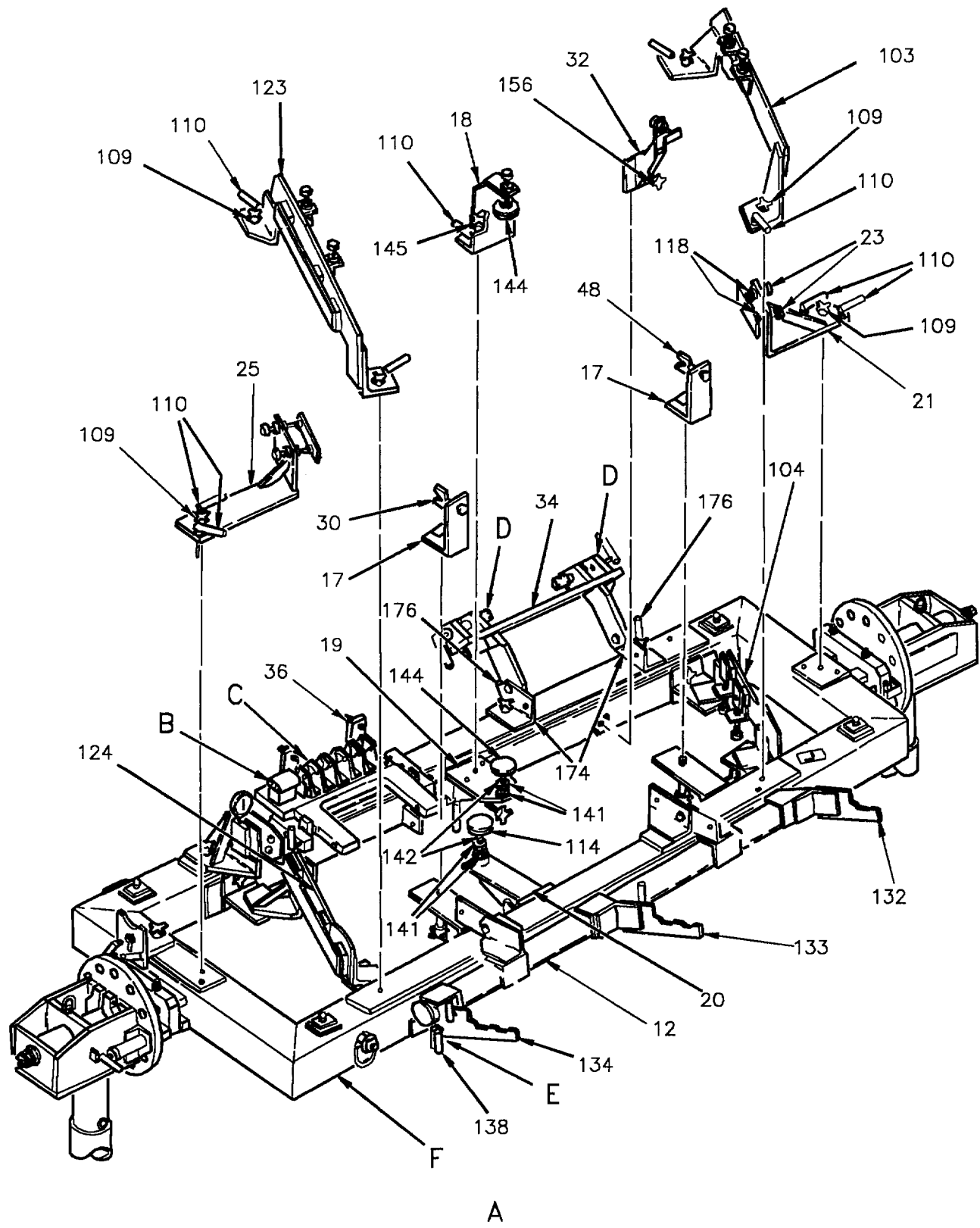
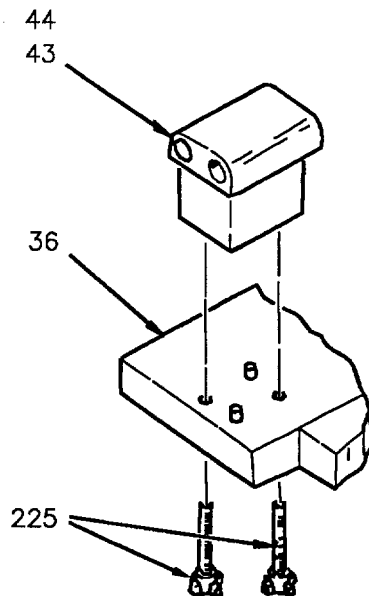
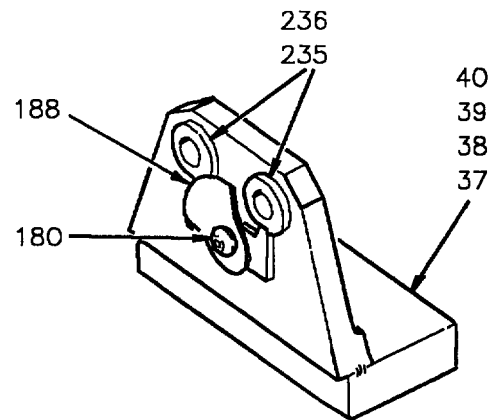


Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 2)

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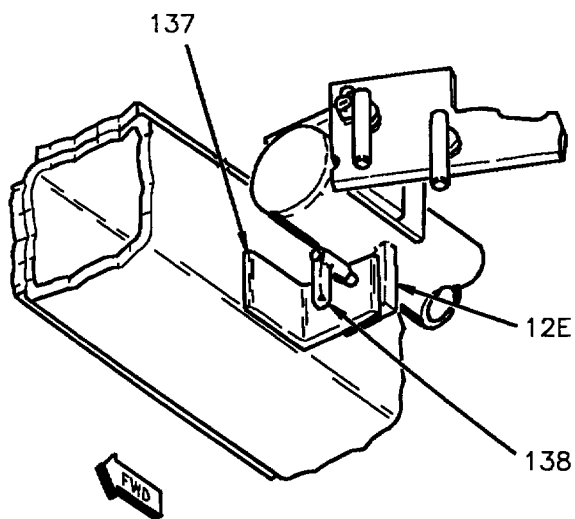


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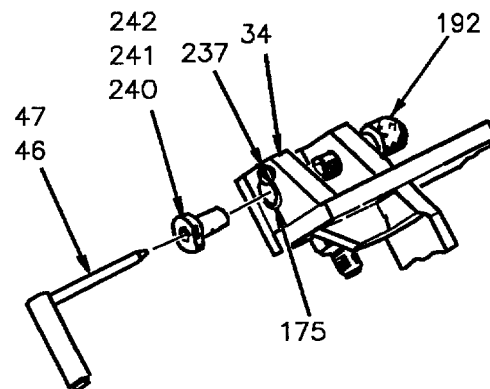


C

TYPICAL 6 PLACES



E



D

TYPICAL 2 PLACES

Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 3)

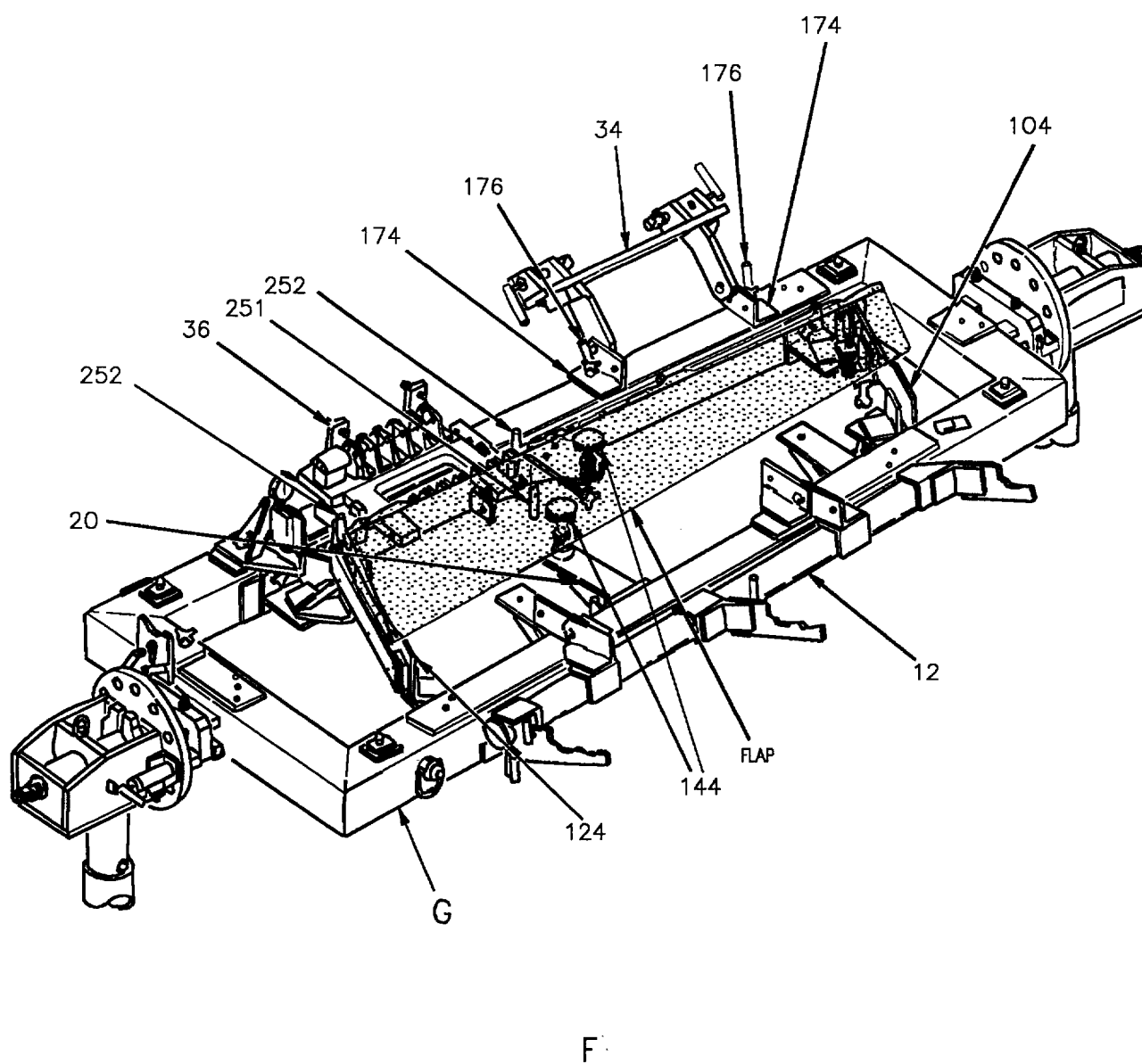
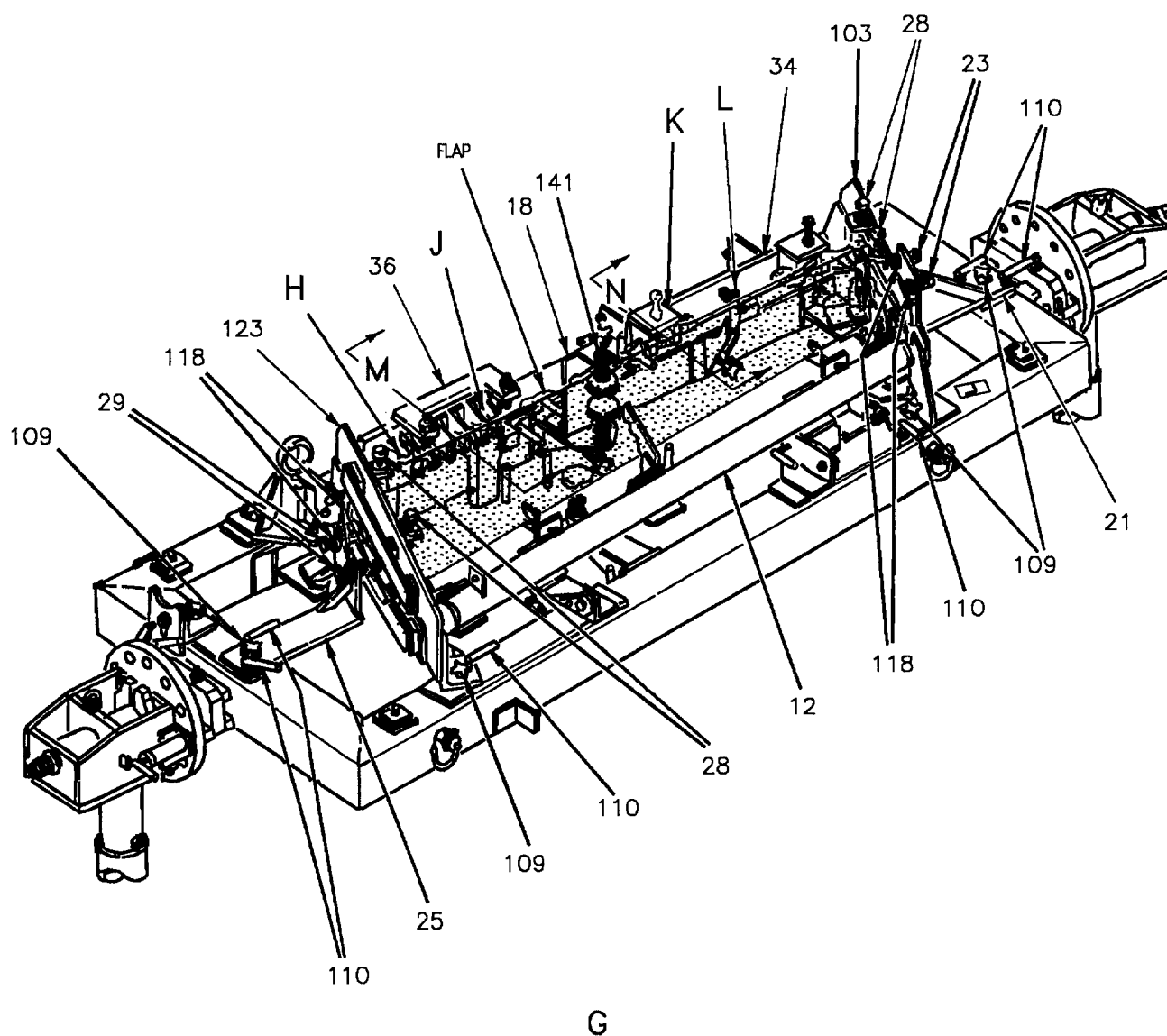


Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 4)



**Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 5)**

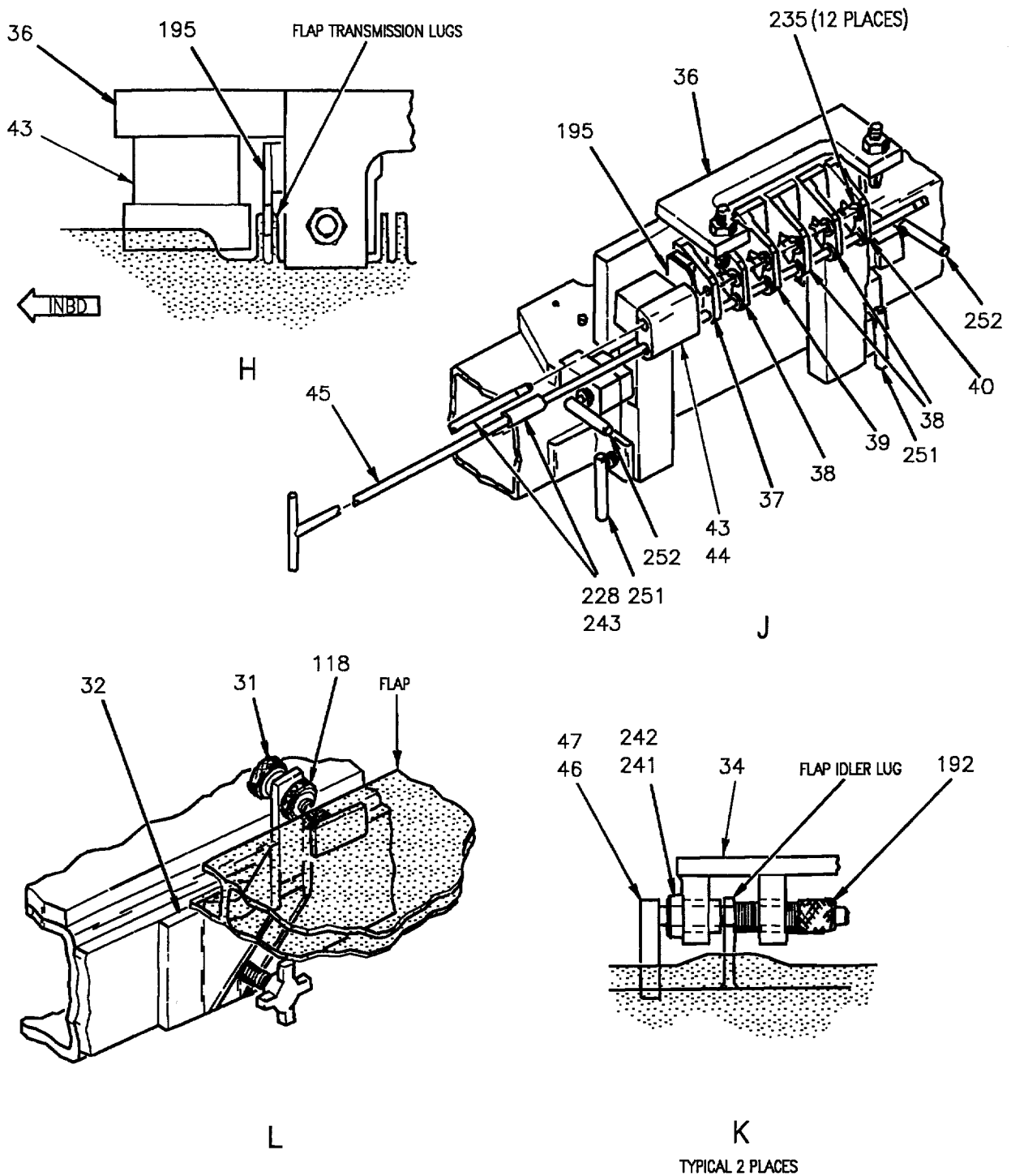


Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 6)

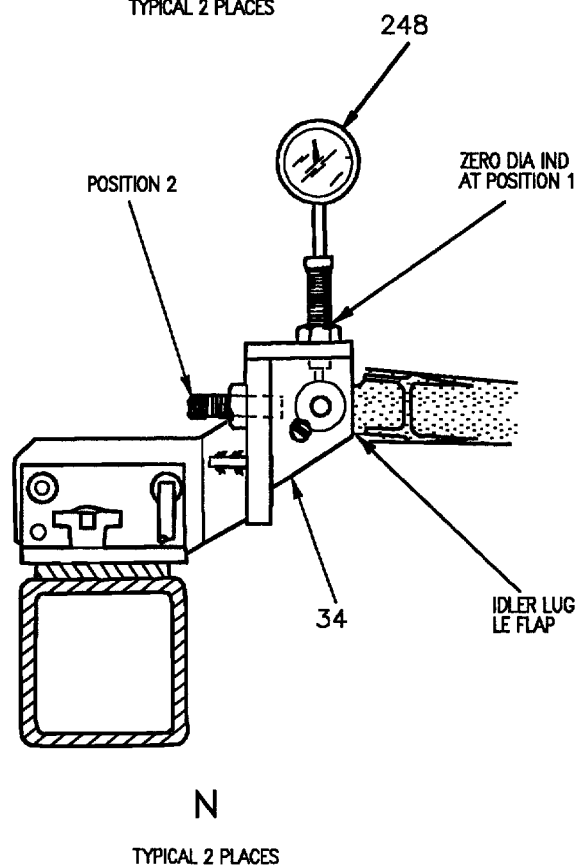
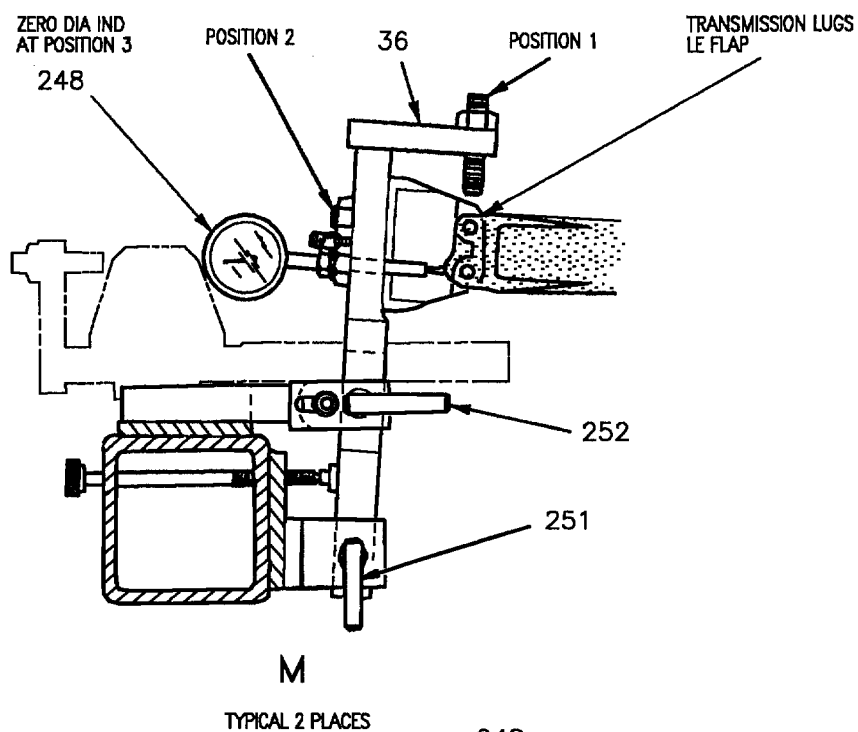


Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 7)



Detail No.	Name	Function
12	Support	Supports and rotates details 132, 133 and 134.
12E	Plate	Supports detail 12 in retracted position.
13	Spindle	Supports and rotates maintenance fixture.
14	L-Pin	Locates detail 13.
17	Support	Supports details 30 and 48.
18	Support	Supports detail 144.
19	Support	Supports detail 144.
20	Support	Supports detail 144.
21	Support	Supports detail 23.
23	Thumbscrew	Secures flap in place.
25	Support	Supports detail 29.
28	Thumbscrew	Secures flap in place.
29	Thumbscrew	Secures flap in place.
30	Clamp	Supports and aligns leading edge skin during replacement.
31	Thumbscrew	Secures flap in place.
32	Support	Supports detail 31.
34	Support	Supports and rotates details 46, 47, 175, 192, 237, 240, 241 and 242.
35	Support	Supports detail 36.
36	Support	Supports and rotates details 37, 38, 39, 40, 43 and 44.
37	Drill guide	Supports details 235 and 236.
38	Drill guide	Supports details 235 and 236.
39	Drill guide	Supports details 235 and 236.
40	Drill guide	Supports details 235 and 236.
43	Drill guide	Guides drill into detail 235.
44	Drill-guide	Guides drill into detail 235.
45	Handle	Guide details 228 and 243 into details 43 or 44, 235 or 236, in details 37, 38, 39 and 40.
46	L-Pin	Supports and aligns flap.
47	L-Pin	Supports and aligns flap.
48	Clamp	Supports and aligns leading edge skin during replacement.
103	Contour board	Support and align flap.
104	Contour board	Support and align flap.
109	Hand knob	Secures details 21, 25, 103 and 123.
110	L-Pin	Locates details 12, 17, 18, 21, 25, 103 and 123.
118	Knurled nut	Locks details 23, 28, 29 and 31 in place.
123	Contour board	Support and align flap.
124	Contour board	Support and align flap.

Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 8)

Detail No.	Name	Function
128	Plate	Supports detail 12 in place.
132	Contour board	Support and align flap.
133	Contour board	Support and align flap.
134	Contour board	Support and align flap.
137	Angle bracket	Supports detail 12 in retracted position.
138	L-Pin	Locates detail 12.
141	Knurled nut	Locks detail 144 in place.
142	Stud	Raises and lowers detail 144.
144	Pad	Supports flap.
145	Hand knob	Secures detail 18.
156	Hand knob	Secures detail 32.
157	Dowel	Aligns detail 32.
158	Dowel	Aligns detail 32.
163	Angle bracket	Supports detail 36 in place.
171	Indicator set block	Stores and zeroes detail 248.
174	Angle bracket	Support detail 36 in place.
175	Liner bushing	Supports and align details 240, 241 and 242.
176	L-Pin	Locates detail 34.
180	Screw	Secures detail 188 in place.
188	Retainer	Retains detail 234.
192	Drill guide	Drill support for flap idler lug.
195	Locator	Positions flap in fixture.
225	Hand knob	Secures detail 42.
228	Pin	Locates flap in fixture.
235	Drill bushing	Guides reamer into flap transmission lugs.
236	Drill bushing	Guides reamer into flap transmission lugs.
237	Screw	Secures detail 175 in place.
240	Drill bushing	Guides reamer into flap idler lug.
241	Drill bushing	Guides reamer into flap idler lug.
242	Drill bushing	Guides reamer into flap idler lug.
243	Pin	Locates flap in fixture.
248	Dial indicator	Measures lug edge distance.
251	T-Pin	Locates detail 36.
252	T-Pin	Locates detail 36.

Figure 4. Installation of Flap with Damaged Bushings into Fixture (Sheet 9)

7. ALIGNMENT AND TWIST INSPECTION. See figure 5.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Wire Thickness Gage	FSC5210

### Materials Required

None

a. Install flap per paragraph 5.

b. Inspect transmission pins (227, 229, or 243) and idler lug L-pins (27, 46, or 47) for free rotation to make sure flap is not misaligned in fixture, views A and B.

c. When flap is found to be misaligned in fixture, readjust knurled nut (detail 141) or thumbscrews (details 23, 28, 29, or 31), views C and D.

d. Inspect for a twisted flap, view C and D, per substeps below:

(1) Inspect for a 0.250 inch gap between upper mold line of flap and forward and aft positions of upper contour boards (detail 103 and 123).

(2) Use a 0.250 inch wire thickness gage to inspect for 0.250 inch gap.

(3) When gap between upper mold line of flap and forward and aft upper contour boards (details 103 and 123) is more than or less than 0.250 inch, flap requires an engineering disposition.

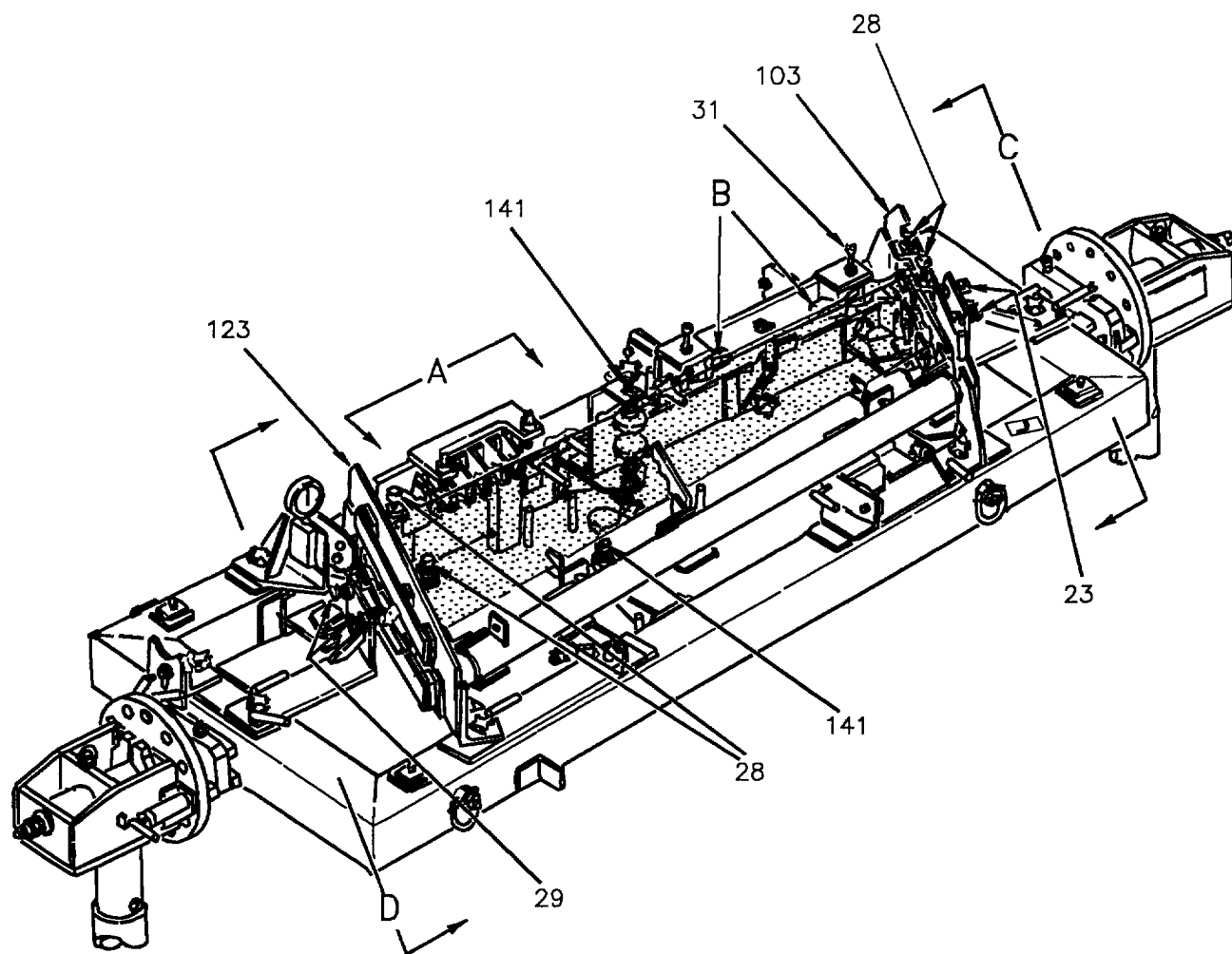


Figure 5. Alignment and Twist Inspection (Sheet 1)

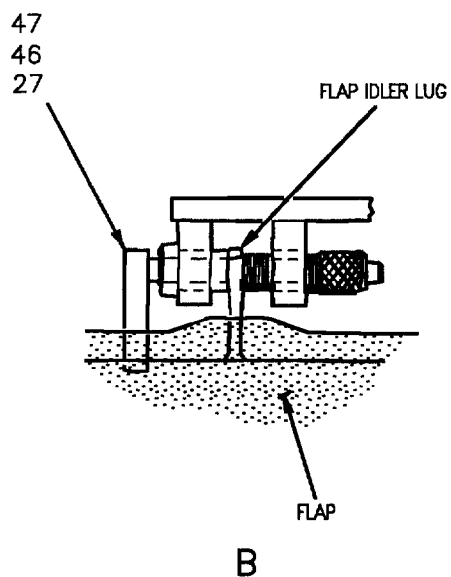
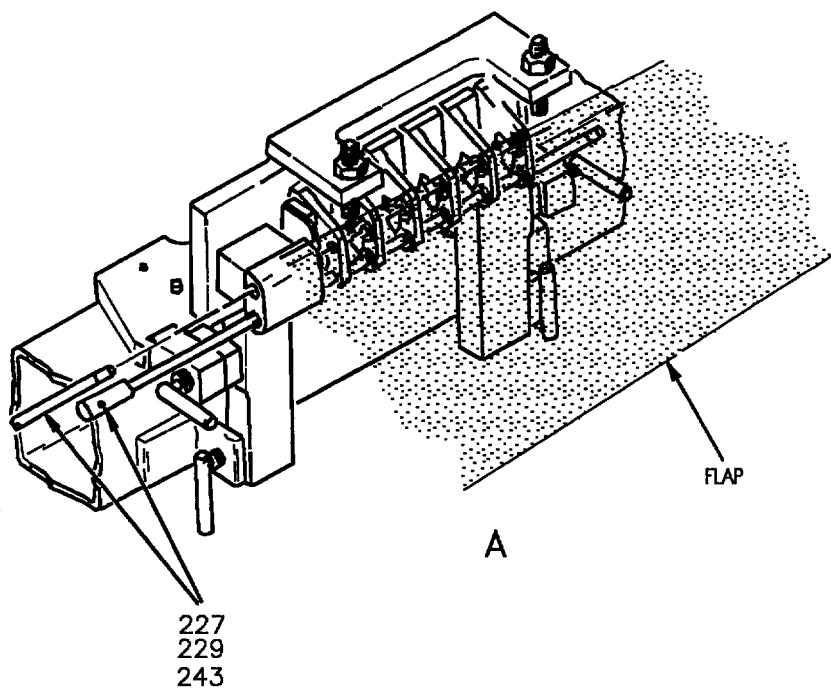


Figure 5. Alignment and Twist Inspection (Sheet 2)

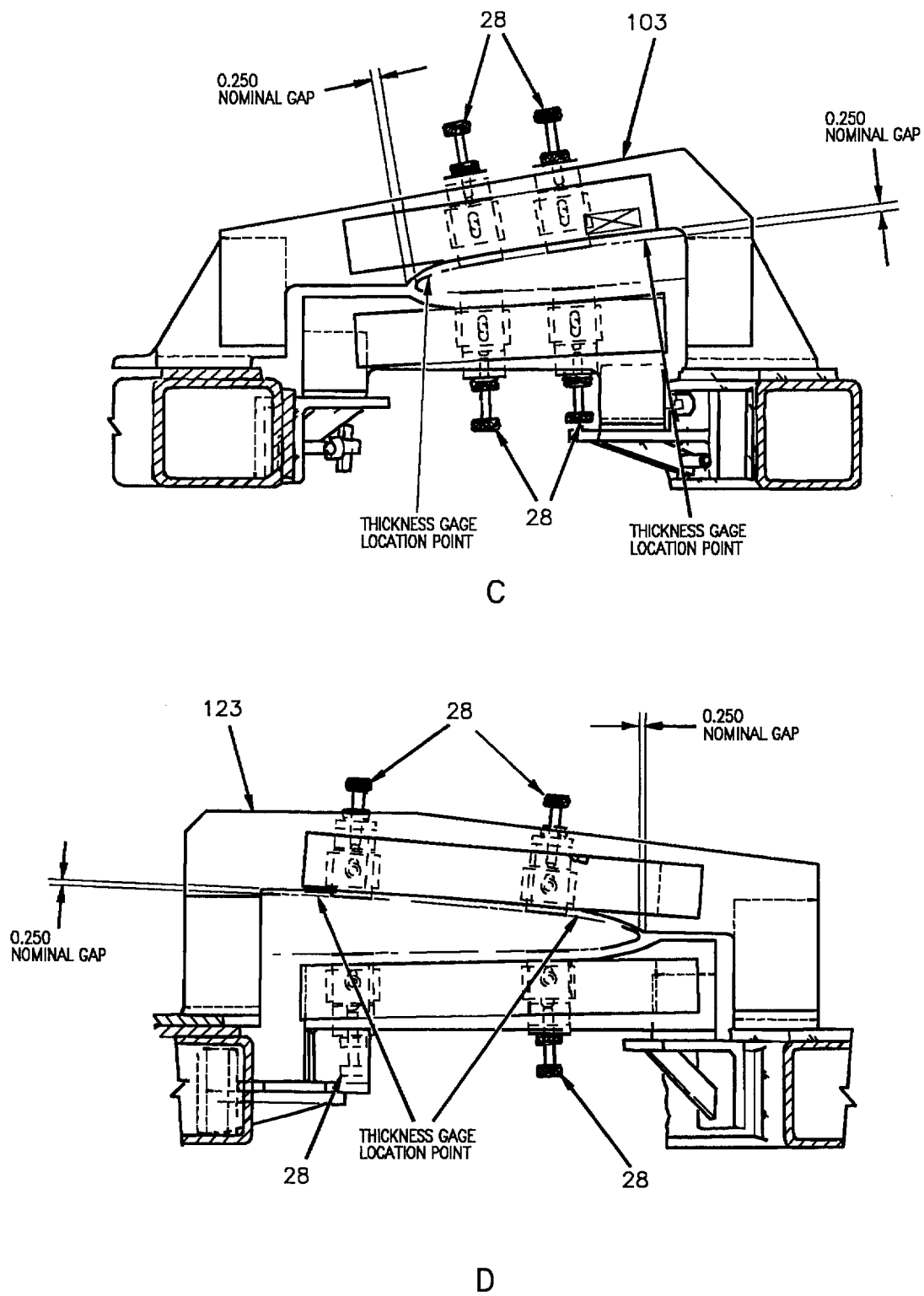


Figure 5. Alignment and Twist Inspection (Sheet 3)

Detail No.	Name	Function
23	Thumbscrew	Secures flap in place.
27	L-Pin	Supports and aligns flap.
28	Thumbscrew	Secures flap in place.
29	Thumbscrew	Secures flap in place.
31	Thumbscrew	Secures flap in place.
46	L-Pin	Supports and aligns flap.
47	L-Pin	Supports and aligns flap.
103	Contour board	Supports and aligns flap.
123	Contour board	Supports and aligns flap.
141	Knurled nut	Locks stud in place.
227	Pin	Locates flap in fixture.
229	Pin	Locates flap in fixture.
243	Pin	Locates flap in fixture.

Figure 5. Alignment and Twist Inspection (Sheet 4)





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DEPOT MAINTENANCE  
STRUCTURE REPAIR  
MAINTENANCE FIXTURE RE174190203  
OUTBOARD LEADING EDGE FLAP REPAIRS

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### Reference Material

Structural Repair, Wing .....	A1-F18AC-SRM-210
Maintenance Fixture RE174190203 Outboard Leading Edge Flap	
Maintenance Fixture - Installation .....	WP015 03
Structural Repair - General Information .....	A1-F18AC-SRM-200
Locating Blind Holes and Trim Lines .....	WP004 03
Adhesive, Cement and Sealant; Preparation and Application .....	WP011 00
Structural Hardware .....	NAVAIR 01-1A-8

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### Record of Applicable Technical Directives

None

1. **DESCRIPTION.** (fixture) is used to repair the outboard leading edge flap (flap). The fixture contains locators for various details on the flap and supports to hold the flap in position during repair actions.
2. The outboard leading edge flap maintenance fixture

### 3. TRANSMISSION BUSHING REPLACEMENT, FIRST OVERSIZE. See figure 1.

#### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bore/Reamer, 0.4826	SPTRE174190203 (Part of RE274190203-1)
Drill Motor Extension	74D110312-1005 SPT11-74A190803-5001TD (Part of RE274190203-1)
File	SPT4-74A110003-5003TD (Part of RE274190203-1)
Finish Reamer, 0.3435	SPT17-74A190803-5001TD (Part of RE274190203-1)
Lock On Bushing	STD138BD-3-0 (Part of RE574000002-1)
Micrometer, Inside Caliper	FSC 5210
Mistic Coolant Generator Nose Piece	D30771ST1LC TD5015K-IE-108 or -109 (Part of RE574000002-1)
Repair Kit, Flap, LE Outboard	RE274190203-1

#### Materials Required

Nomenclature	Specification or Part Number
Bushing	ST4M219-05005
Bushing	ST4M219-05006
Bushing	ST4M219-05017
Bushing	ST4M219-05018
Coolant	Isopar M

a. Load flap into fixture by Installation of Outboard Leading Edge Flap into Maintenance Fixture (Damaged Transmission and Idler Bushing) (WP015 03).

b. Position support (detail 153) in lower position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail

170) into lower holes. Install two L-pins (detail 168) and screw (detail 167).

c. Remove two pins (detail 243) from upper and lower flap transmission lugs, drill guides (details 37, 38, 39, and 40) and drill guide (detail 43), view A.

d. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Rotate support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support (detail 36) to lock support (detail 36) in retracted position.

e. Install two drill bushings (detail 235) into each of six drill guides (details 37, 38, 39, and 40), view C per substeps below:

(1) Loosen screw (detail 180).

(2) Rotate retainer (detail 188) until clear, insert drill bushings (detail 235) into drill guides (details 37, 38, 39, and 40).

(3) Rotate retainer (detail 188) to retain drill bushings (detail 235) and tighten screw (detail 180).

f. Install drill guide (detail 43) on support (detail 36) with two hand knobs (detail 225), view B.

#### NOTE

To aid with installation or removal of pin (details 227, 228, 243, or 244) attach handle (detail 45) before installation or removal.

g. Insert pin (detail 228) through drill guide (detail 43) into all drill bushings (detail 235) installed in drill guides (details 37, 38, 39, and 40) to inspect for misaligned or undersize drill bushings (detail 235), make sure that pin (detail 228) is completely through all drill bushings (detail 235), view A.

h. Remove pin (detail 228) from drill bushing (detail 235) and drill guide (detail 43).

i. Remove T-pins (detail 252) from support (detail 35) and rotate support (detail 36) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40).

j. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place.

k. Insert pin (detail 243) through upper hole in drill guide (detail 43), drill bushings (detail 235) in drill guides (detail 37, 38, 39, and 40) and upper flap transmission lugs, view A.

l. Assemble drill motor, nose piece, and lock on bushing.

m. Install 0.4826 bore/reamer into extension and install 0.4826 bore/reamer and extension into nose piece and drill motor.

n. Install lock on bushing with nose piece and drill motor into lower hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.



Coolant, Isopar M

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o. Start drill motor and hand feed to bore/ream holes in lower flap transmission lugs. Use mistic coolant generator (generator) filled with Isopar M coolant (coolant) to keep flap transmission lugs cool during bore/reaming.

p. Retract bore/reamer with drill motor operating and keeping cool with coolant; when completely retracted, stop drill motor and coolant flow.

q. Remove lock on bushing with nose piece and drill motor from lower hole in drill plate (detail 193), view A.

r. Remove pin (detail 243) from upper flap transmission lugs, drill bushings (detail 235) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (detail 43).

s. Insert pin (detail 228) through lower hole in drill guide (detail 43), drill bushings (detail 235) in drill guides (details 37, 38, 39, and 40) and lower flap transmission lugs.

t. Position support (detail 153) in upper position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into upper holes. Install two L-pins (detail 168) and screw (detail 167).

u. Install lock on bushing with nose piece and drill motor into upper hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.

v. Start drill motor and hand feed to bore/ream holes in upper flap transmission lugs. Use generator filled with coolant to keep flap transmission lugs cool during bore/reaming.

w. Retract bore/reamer with drill motor operating and keeping cool with coolant; when completely retracted, stop drill motor and coolant flow.

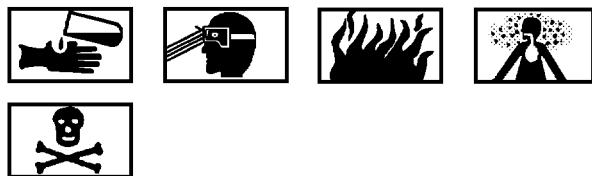
x. Remove lock on bushing with nose piece and drill motor from upper hole in drill plate (detail 193), view A.

y. Remove pin (detail 228) from upper flap transmission lugs, drill bushings (detail 235) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (detail 43).

z. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Rotate support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support (detail 36) to lock support (detail 36) in retracted position.

aa. Inspect diameter of upper and lower bore/reamed holes on flap transmission lugs to 0.4821 inch, plus 0.0020 inch, minus 0.0000 inch with an inside caliper micrometer.

ab. Install interference fit first oversize bushings with bushing installation and removal tool set, views E, F, G, and H.



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ac. File bushings flush at the flap transmission lug faces, views G and H.

ad. Remove two drill bushings (detail 235) from each of six drill guides (details 37, 38, 39, and 40), view C per substeps below:

(1) Loosen screw (detail 180).

(2) Rotate retainer (detail 188) until clear remove two drill bushings (detail 235) from drill guides (details 37, 38, 39, and 40).

ae. Install two drill bushings (detail 234) into each of six drill guides (details 37, 38, 39, and 40) per substeps below:

(1) Install drill bushings (detail 234) into drill guides (details 37, 38, 39, and 40).

(2) Rotate retainer (detail 188) to retain drill bushings (detail 234) and tighten screw (detail 180).

af. Remove drill guide (detail 43) by removing two hand knobs (detail 225) from support (detail 36), view B.

ag. Install drill guide (detail 42) on support (detail 36) with two hand knobs (detail 225), view B.

ah. Insert pin (detail 227) through drill guide (detail 42) into all drill bushing (detail 234) installed in drill guides (details 37, 38, 39, and 40) to inspect for misaligned or undersize drill bushings (detail 234), make sure that pin (detail 227) is completely through all drill bushing (detail 234), view A.

ai. Remove two T-pins (detail 252) from support (detail 35) and rotate support (detail 36) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40).

aj. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place.

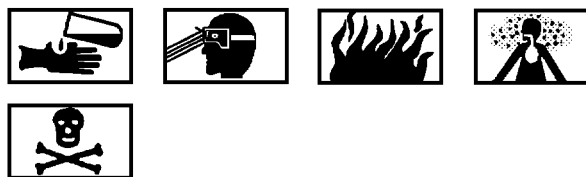
ak. Insert pin (detail 244) through upper hole in drill guide (detail 42), drill bushings (detail 234) in

drill guides (details 37, 38, 39, and 40) and upper flap transmission lugs.

al. Position support (detail 153) in lower position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into upper holes. Install two L-pins (detail 168) and screw (detail 167).

am. Install 0.3435 inch finish reamer into nose piece and drill motor.

an. Install lock on bushing with nose piece and drill motor into lower hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.



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ao. Start drill motor and hand feed to finish ream holes in lower flap transmission lugs. Use generator filled with coolant to keep flap transmission lugs cool during finish reaming.

ap. Retract finish reamer with drill motor operating and keeping cool with coolant, when completely retracted, stop drill motor and coolant flow.

aq. Remove lock on bushing with nose piece and drill motor from lower hole in drill plate (detail 193), view A.

ar. Remove pin (detail 244) from upper flap transmission lugs, drill bushings (detail 234) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (42).

as. Insert pin (detail 227) through lower hole in drill guide (detail 42), drill bushings (detail 234) in drill guides (details 37, 38, 39, and 40) and lower flap transmission lugs.

at. Position support (detail 153) in upper position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into lower holes. Install two L-pins (detail 168) and screw (detail 167).

au. Install lock on bushing with nose piece and drill motor into upper hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.

av. Start drill motor and hand feed to finish ream holes in upper flap transmission lugs. Use generator filled with coolant to keep flap transmission lugs cool during finish reaming.

aw. Retract finish reamer with drill motor operating and keeping cool with coolant, when completely retracted, stop drill motor and coolant flow.

ax. Remove lock on bushing with nose piece and drill motor from upper hole in drill plate (detail 193), view A.

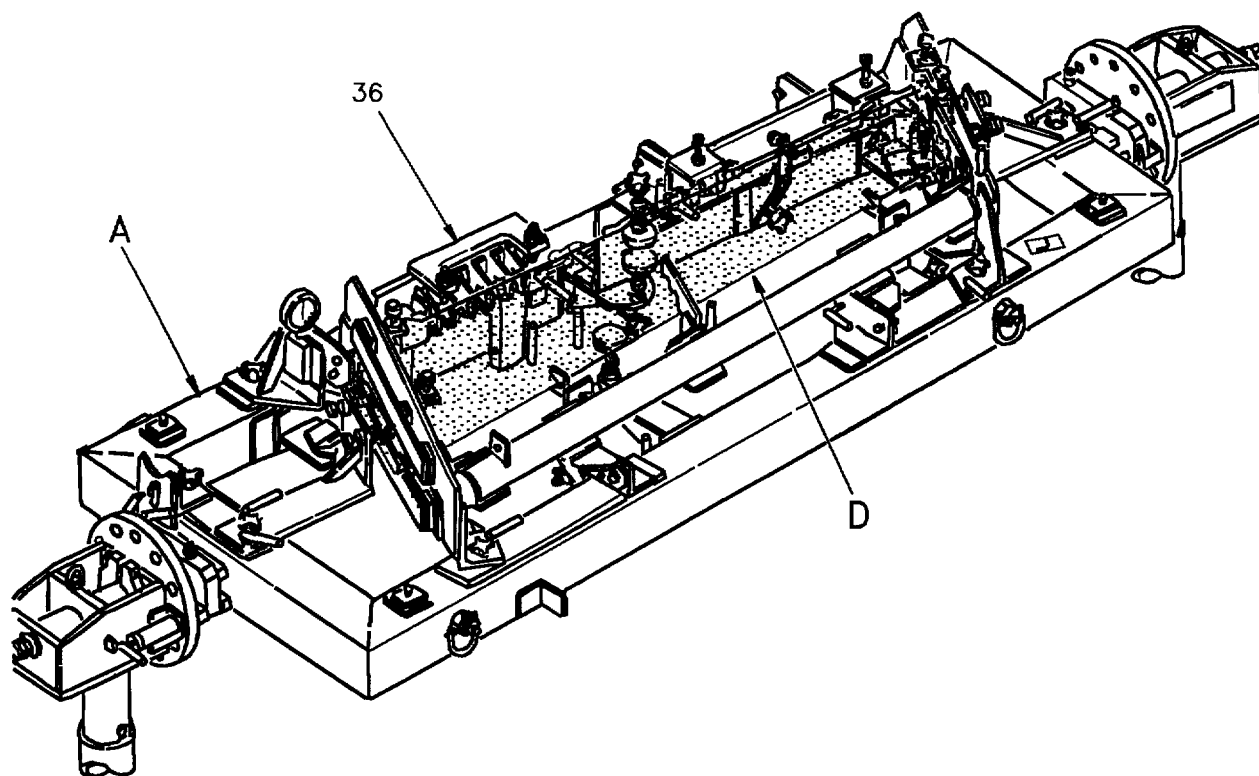


Figure 1. Transmission First Oversize Bushing Installation (Sheet 1)

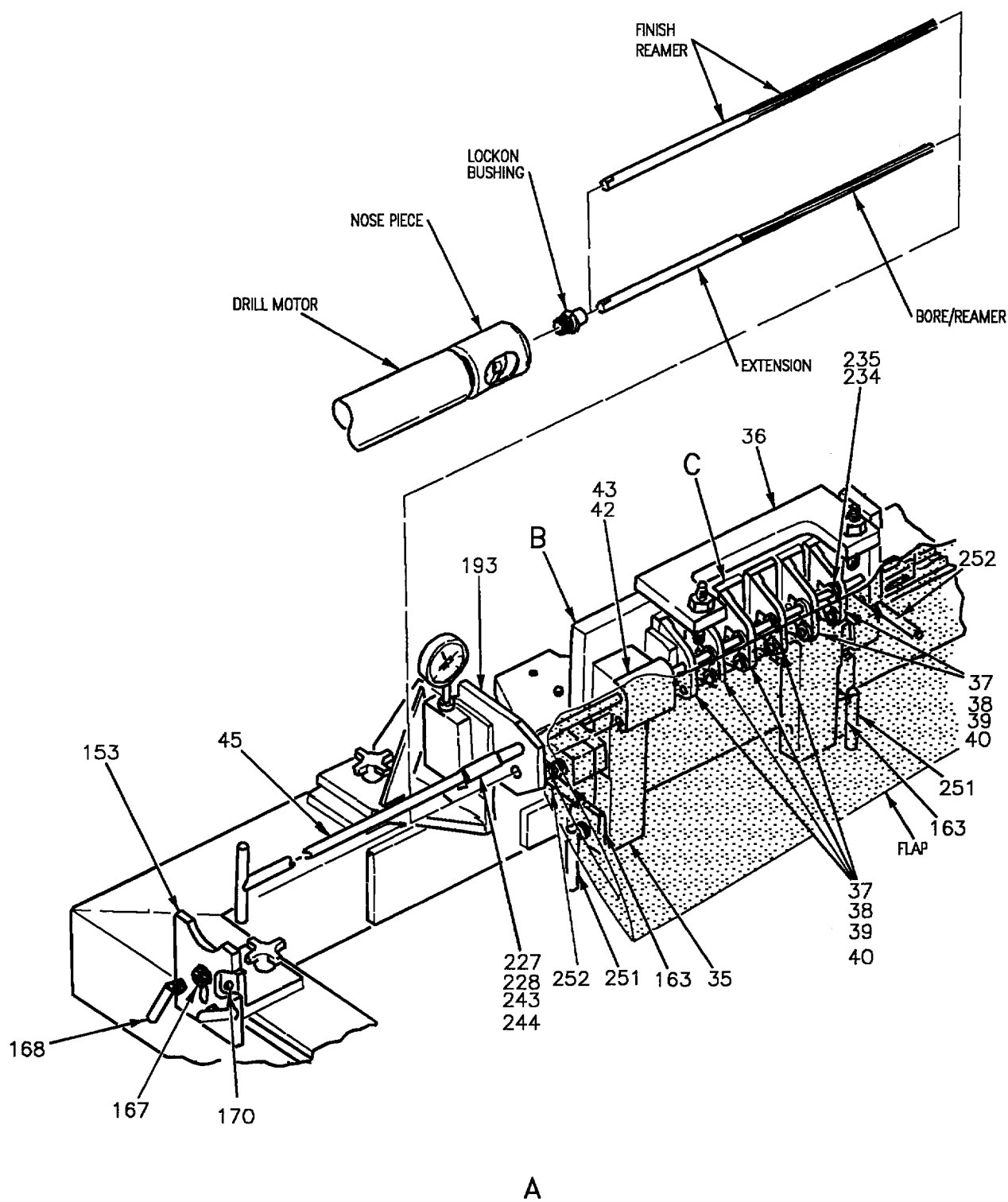


Figure 1. Transmission First Oversize Bushing Installation (Sheet 2)

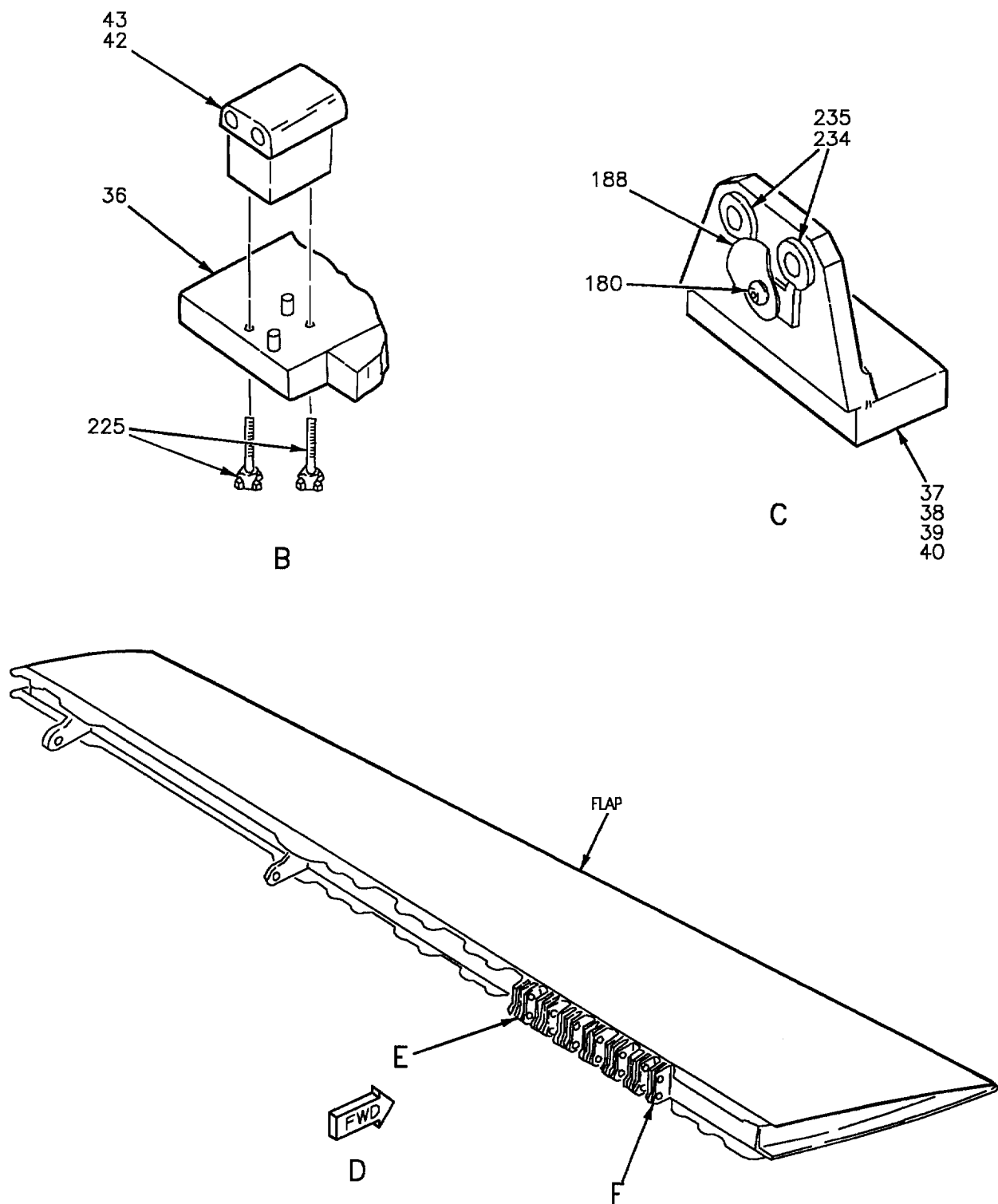
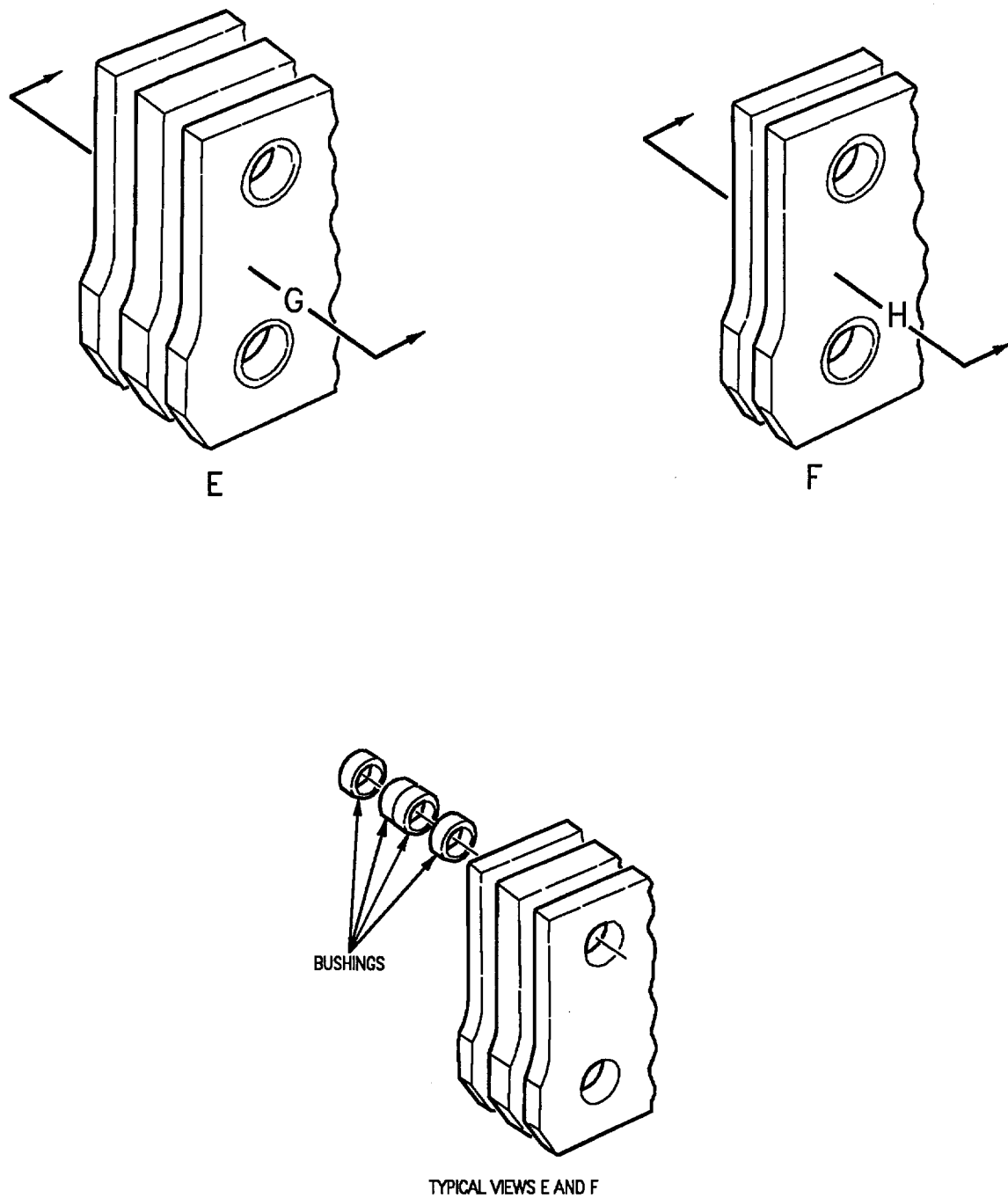


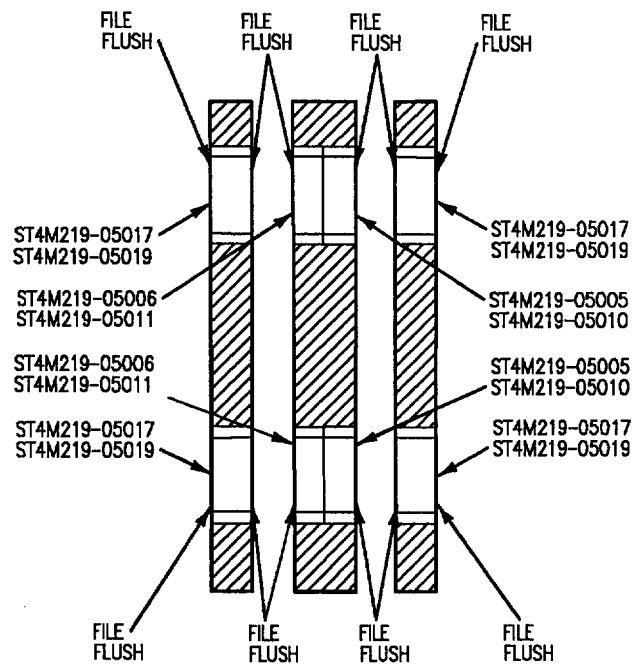
Figure 1. Transmission First Oversize Bushing Installation (Sheet 3)



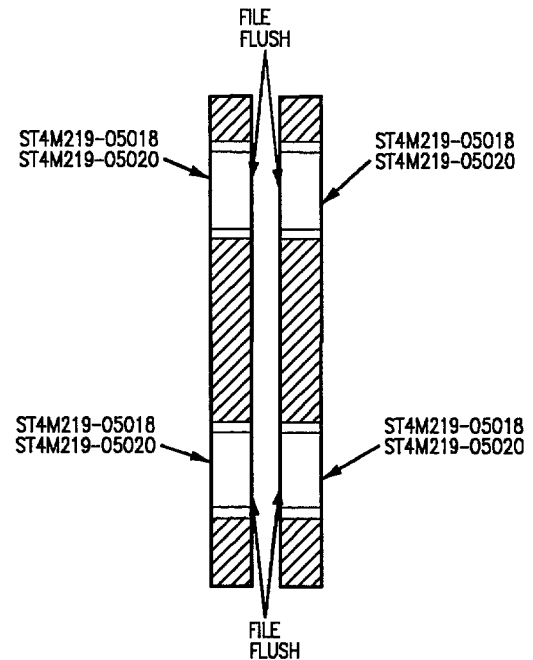


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Figure 1. Transmission First Oversize Bushing Installation (Sheet 4)



G  
TYPICAL 6 PLACES



H

Figure 1. Transmission First Oversize Bushing Installation (Sheet 5)

Detail No.	Name	Function
35	Support	Supports detail 36.
36	Support	Supports and rotates details 37, 38, 39, 40, 42 and 43.
37	Drill guide	Supports details 234 and 235.
38	Drill guide	Supports details 234 and 235.
39	Drill guide	Supports details 234 and 235.
40	Drill guide	Supports details 234 and 235.
42	Drill guide	Guides reamer into details 234 and 235.
43	Drill guide	Guides reamer into details 234 and 235.
45	Handle	Guides details 227, 228, 243 or 244 in detail 43 or 44 and 234 or 236 in details 37, 38, 39 and 40.
153	Support	Supports drill motor.
163	Angle bracket	Supports Detail 36 in place.
167	Screw	Secures detail 153 in place.
168	L-Pin	Locates detail 153.
170	Dowel	Aligns detail 153.
180	Screw	Secures detail 188 in place.
188	Retainer	Retains details 234 and 235.
193	Drill plate	Supports and locates drill motor.
225	Hand knob	Secures details 42 and 43.
227	Pin	Locates flap in fixture.
228	Pin	Locates flap in fixture.
234	Drill bushing	Guides reamer into flap transmission lugs.
235	Drill bushing	Guides reamer into flap transmission lugs.
243	Pin	Locates flap in fixture.
244	Pin	Locates flap in fixture.
251	T-Pin	Locates detail 36.
252	T-Pin	Locates detail 36.

Figure 1. Transmission First Oversize Bushing Installation (Sheet 6)

#### 4. TRANSMISSION BUSHING REPLACEMENT, SECOND OVERSIZE. See figure 2.

##### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bore/Reamer, 0.5037	SPT2-RE174190203 (Part of RE274190203-1)
Cylinder	RD93
Drill Motor	74D110312-1005
Extension	SPT11-74A190803-5001TD (Part of RE274190203-1)
File	SPT4-74A110003-5003TD (Part of RE274190203-1)
Finish Reamer, 0.3435	SPT17-74A190803-5001TD (Part of RE274190203-1)
Lock On Bushing	STD138BD-3-0 (Part of RE574000002-1)
Micrometer, Inside Caliper	FSC 5210
Mistic Coolant Generator	D30771ST1LC
Nose Piece	TD5015K-IE-108 or -109 (Part of RE574000002-1)
Pump	74D110323-1001
Repair Kit, Flap, LE Outboard	RE274190203-1

##### Materials Required

Nomenclature	Specification or Part Number
Bushing	ST4M219-05010
Bushing	ST4M219-05011
Bushing	ST4M219-05019
Bushing	ST4M219-05020
Cheesecloth	CCC-C-440, Type 1, Class 1
Coolant	Isopar M
Isopropyl Alcohol	TT-I-735, Grade 1

a. Load flap into fixture by Installation of Outboard Leading Edge Flap into Maintenance Fixture (Damaged Transmission and Idler Bushing) (WP015 03).

b. Position support (detail 153) in lower position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into lower holes. Install two L-pins (detail 168) and screw (detail 167).

c. Remove two pins (detail 245) from upper and lower flap transmission lugs, drill guides (details 37, 38, 39, and 40) and drill guide (detail 44), view A.

d. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Rotate support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support (detail 36) to lock support (detail 36) in retracted position.

e. Install two drill bushings (detail 236) into each of six drill guides (details 37, 38, 39, and 40), view C per substeps below:

(1) Loosen screw (detail 180).

(2) Rotate retainer (detail 188) until clear, insert drill bushings (detail 236) into drill guides (details 37, 38, 39, and 40).

(3) Rotate retainer (detail 188) to retain drill bushings (detail 236) and tighten screw (detail 180).

f. Install drill guide (detail 44) on support (detail 36) with two hand knobs (detail 225), view B.

## NOTE

To aid with installation or removal of pin (details 226, 227, 229, or 245), attach handle (detail 45) before installation or removal.

g. Insert pin (229) through drill guide (detail 44) into all drill bushings (detail 236) installed, in drill guides (details 37, 38, 39, and 40) to inspect for misaligned or undersize drill bushings (detail 236), make sure that pin (detail 229) is completely through all drill bushings (detail 236), view A.

h. Remove T-pins (detail 252) from support (detail 35) and rotate support (detail 36) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40).

i. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place.

j. Insert pin (detail 245) through upper hole in drill guide (detail 44), drill bushings (detail 236) in drill guides (details 37, 38, 39, and 40) and upper flap transmission lugs, view A.

k. Assemble drill motor, nose piece and lock on bushing.

l. Install 0.5037 bore/reamer into extension and install 0.5037 bore/reamer and extension into nose piece and drill motor.

m. Install lock on bushing with nose piece and drill motor into lower hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.



Coolant, Isopar M



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n. Start drill motor and hand feed to bore/ream holes in lower flap transmission lugs. Use mistic coolant generator (generator) filled with Isopar M coolant (coolant) to keep flap transmission lugs cool during bore/reaming.

o. Retract bore/reamer with drill motor operating and keeping cool with coolant, when completely retracted stop drill motor and coolant flow.

p. Remove lock on bushing with nose piece and drill motor from lower hole in drill plate (detail 193), view A.

q. Remove pin (detail 245) from upper flap transmission lugs, drill bushings (detail 236) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (detail 44).

r. Insert pin (detail 229) through lower hole in drill guide (detail 44), drill bushings (detail 236) in drill guides (details 37, 38, 39, and 40) and lower flap transmission lugs.

s. Position support (detail 153) in upper position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into upper holes. Install two L-pins (detail 168) and screw (detail 167).

t. Install lock on bushing with nose piece and drill motor into upper hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.

u. Start drill motor and hand feed to bore/ream holes in upper flap transmission lugs. Use generator filled with coolant to keep flap transmission lugs cool during bore/reaming.

v. Retract bore/reamer with drill motor operating and keeping cool with coolant, when completely retracted stop drill motor and coolant flow.

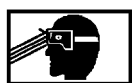
w. Remove lock on bushing with nose piece and drill motor from upper hole in drill plate (detail 193), view A.

x. Remove pin (detail 229) from upper flap transmission lugs, drill bushings (detail 236) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (detail 44).

y. Retract support (detail 36) by removing two T-pins (detail 251) from angle bracket (detail 163) and two T-pins (detail 252) from support (detail 35). Rotate support (detail 36) up and out, reinstall two T-pins (detail 252) through hole in support (detail 35) and under support (detail 36) to lock support (detail 36) in retracted position.

z. Inspect diameter of upper and lower bore/reamed holes on flap transmission lugs to 0.5037 inch, plus 0.0020 inch, minus 0.000 inch with an inside caliper micrometer.

aa. Force mate flap transmission bushings, views E, F, G, and H per substeps below:



Isopropyl Alcohol

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To avoid contamination of isopropyl alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into isopropyl alcohol.

(1) Clean bushings outside diameter and flap transmission lugs and holes with clean cheesecloth dampened with isopropyl alcohol until both are free of metal chips, paint and lubricants.

(2) Sequence for installing bushings in flap transmission is upper outboard to inboard in groups of 3, except for last 2. Lower outboard to inboard in groups of 3, except for last 2.

(3) Assemble puller tube and pull cylinder, views E and F.

(4) Install second oversize bushings by slip fitting bushings into holes in flap transmission.

(5) Install wedge assembly, use light pressure to expand wedges.

(6) Insert puller tube with pull cylinder through installed bushings, rest pull cylinder on support, views E and F.

(7) Install mandrel or puller tube, views E and F.

(8) Make sure the nose piece of pull cylinder is firmly supported against the inboard end of flap transmission lug.

(9) Actuate pull cylinder to pull the mandrel through the bushings to expand the bushings in place and cold work the lug.

(10) Remove mandrel from puller tube and remove pull cylinder and puller tube from flap transmission.

(11) Remove wedge assembly.

(12) Force mate the remaining groups of upper bushings by repeating substeps (4) through (11).

(13) Force mate the lower groups by repeating substeps (4) through (11).



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ab. File bushings flush at the flap transmission lug faces, view G and H.

ac. Remove two drill bushings (detail 236) from each of six drill guides (details 37, 38, 39, and 40), view C per substeps below:

(1) Loosen screw (detail 180).

(2) Rotate retainer (detail 188) until clear remove two drill bushings (detail 236) from drill guides (details 37, 38, 39, and 40).

ad. Install two drill bushings (detail 234) into each of six drill guides (details 37, 38, 39, and 40), view C per substeps below:

(1) Install drill bushings (detail 234) into drill guides (details 37, 38, 39, and 40).

(2) Rotate retainer (detail 188) to retain drill bushings (detail 234) and tighten screw (detail 180).

ae. Remove drill guide (detail 44) by removing two hand knobs (detail 225) from support (detail 36), view B.

af. Install drill guide (detail 42) on support (detail 36) with two hand knobs (detail 225), view B.

ag. Insert pin (detail 227) through drill guide (detail 42) into all drill bushing (detail 234) installed in drill guides (details 37, 38, 39, and 40) to inspect for misaligned or undersize drill bushings (detail 234), make sure that pin (detail 227) is

completely through all drill bushing (detail 234), view A.

ah. Remove two T-pins (detail 252) from support (detail 35) and rotate support (detail 35) up and in. Inspect flap transmission lugs for proper meshing with drill guides (details 37, 38, 39, and 40).

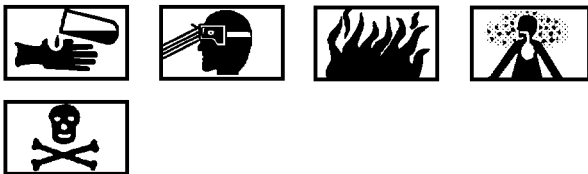
ai. Reinstall two T-pins (detail 252) through support (detail 35) into support (detail 36) and two T-pins (detail 251) through angle bracket (detail 163) into support (detail 36) to lock support (detail 36) in place.

aj. Insert pins (details 226 and 189) through upper hole in drill guide (detail 42), drill bushings (detail 234) in drill guides (details 37, 38, 39, and 40) and upper flap transmission lugs, view A.

ak. Position support (detail 153) in lower position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into lower holes. Install two L-pins (detail 168) and screw (detail 167).

al. Install 0.3435 inch finish reamer into nose piece and drill motor.

am. Install lock on bushing with nose piece and drill motor into lower hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.



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an. Start drill motor and hand feed to finish ream holes in lower flap transmission lugs. Use generator

filled with coolant to keep flap transmission lugs cool during finish reaming.

ao. Retract finish reamer with drill motor operating and keeping cool with coolant, when completely retracted, stop drill motor and coolant flow.

ap. Remove lock on bushing with nose piece and drill motor from lower hole in drill plate (detail 193), view A.

aq. Remove pins (details 226 and 189) from upper flap transmission lugs, drill bushings (detail 34) in drill guides (details 37, 38, 39, and 40) and upper hole in drill guide (42), view A.

ar. Insert pin (detail 227) through lower hole in drill guide (detail 42), drill bushings (detail 234) in drill guides (details 37, 38, 39, and 40) and lower flap transmission lugs.

as. Position support (detail 153) in upper position by removing screw (detail 167) and two L-pins (detail 168), position support (detail 153) with dowels (detail 170) into upper holes. Install two L-pins (detail 168) and screw (detail 167).

at. Install lock on bushing with nose piece and drill motor into upper hole in drill plate (detail 193) and lock in place, rest drill motor on support (detail 153), view A.

au. Start drill motor and hand feed to finish ream holes in upper flap transmission lugs. Use generator filled with coolant to keep flap transmission lugs cool during finish reaming.

av. Retract finish reamer with drill motor operating and keeping cool with coolant, when completely retracted, stop drill motor and coolant flow.

aw. Remove lock on bushing with nose piece and drill motor from upper hole in drill plate (detail 193), view A.

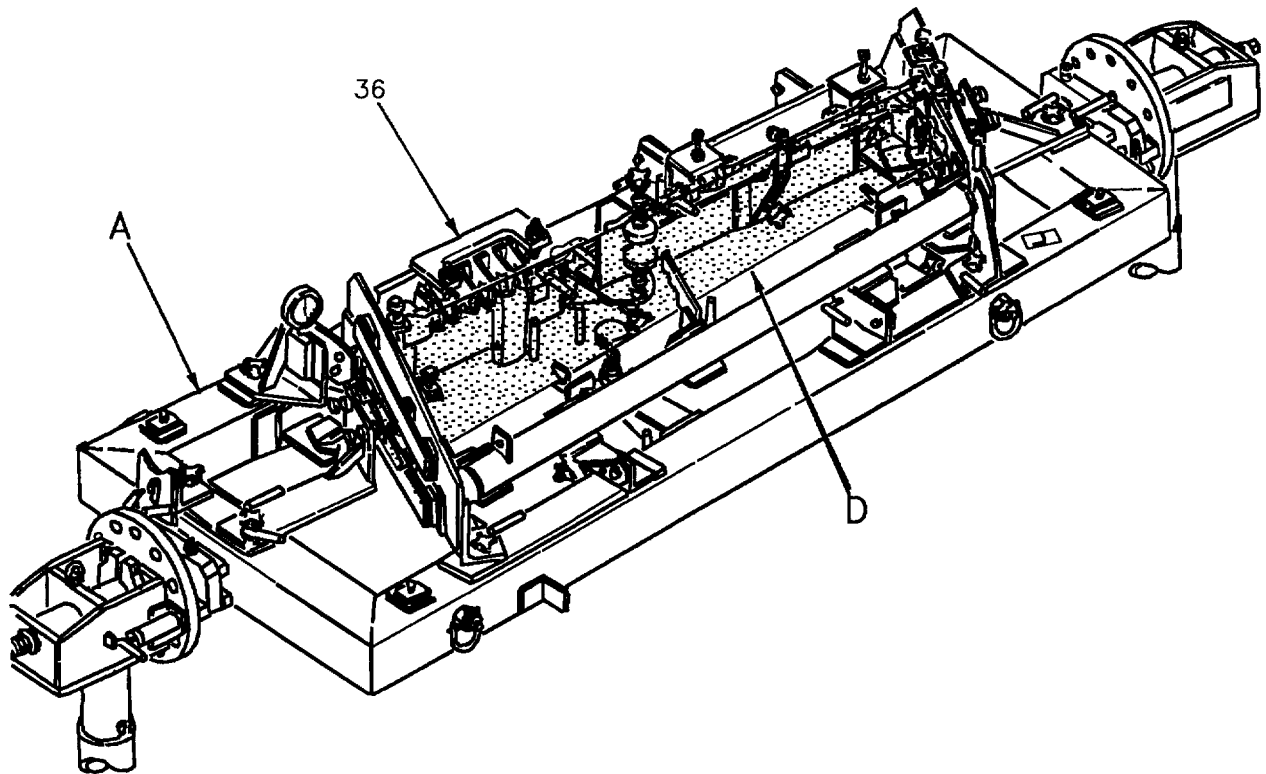


Figure 2. Transmission Second Oversize Bushing Installation (Sheet 1)



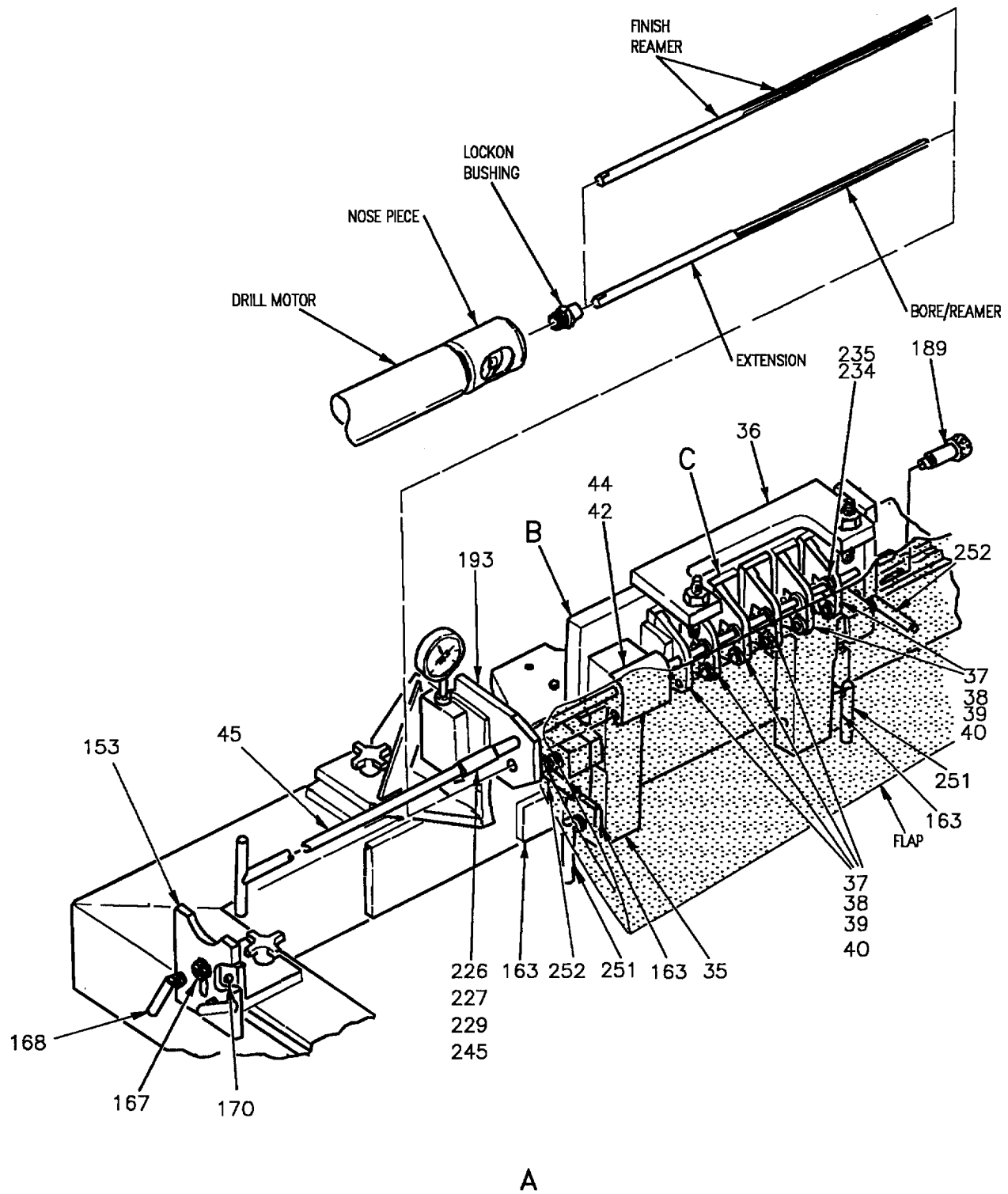


Figure 2. Transmission Second Oversize Bushing Installation (Sheet 2)

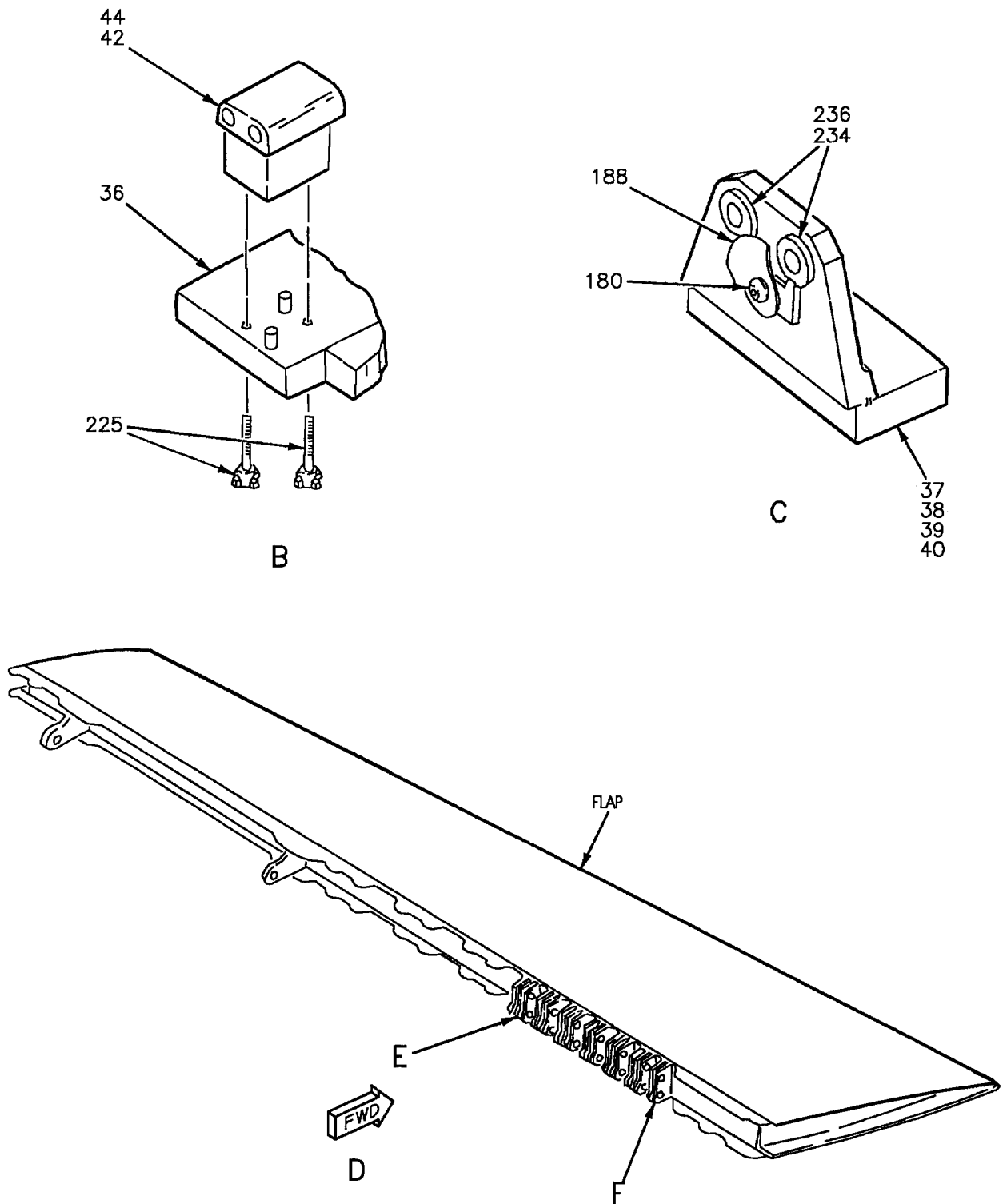


Figure 2. Transmission Second Oversize Bushing Installation (Sheet 3)

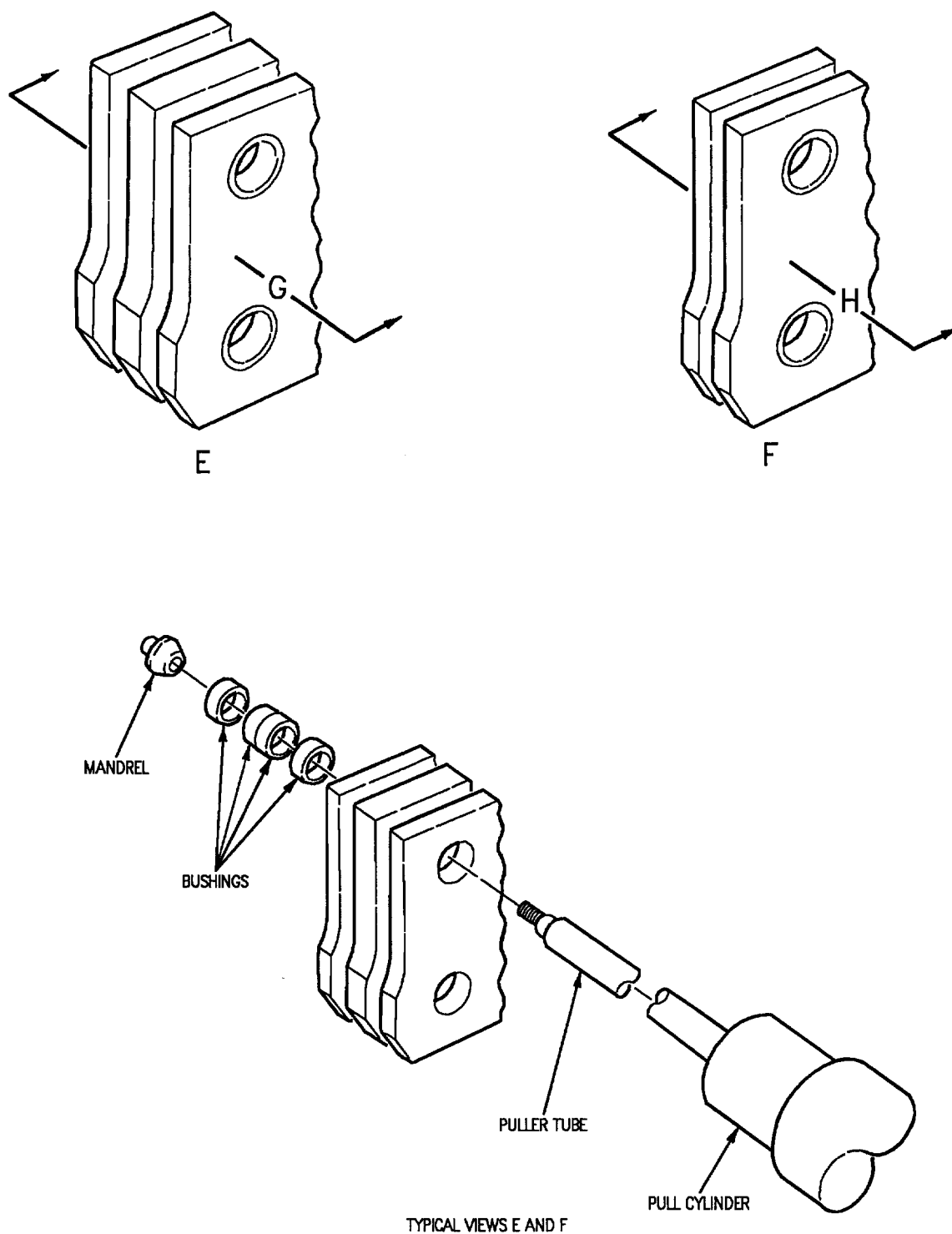
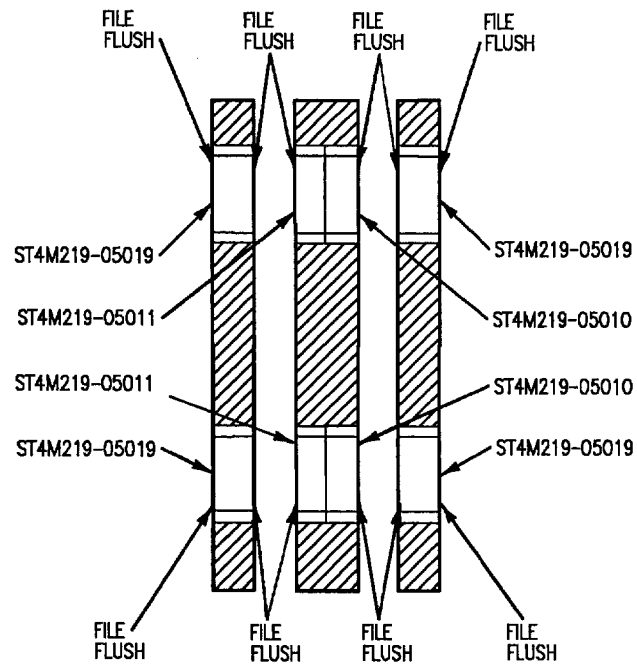
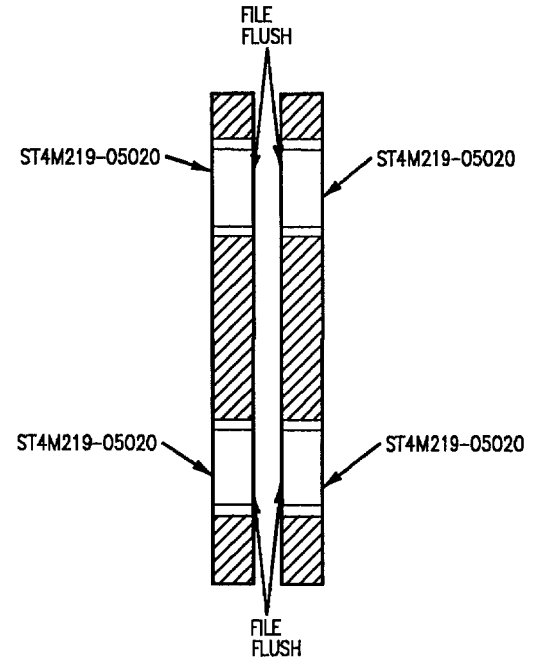


Figure 2. Transmission Second Oversize Bushing Installation (Sheet 4)



G

TYPICAL 6 PLACES



H

Figure 2. Transmission Second Oversize Bushing Installation (Sheet 5)

Detail No.	Name	Function
35	Support	Supports detail 36.
36	Support	Supports and rotates details 37, 38, 39, 40, 42 and 43.
37	Drill guide	Supports details 234 and 236.
38	Drill guide	Supports details 234 and 236.
39	Drill guide	Supports details 234 and 236.
40	Drill guide	Supports details 234 and 236.
42	Drill guide	Guides reamer into details 234 and 236.
45	Handle	Guides details 226, 227, 229 or 245 in details 42 or 44 and 234 or 236 in detail 37, 38, 39 and 40.
44	Drill guide	Guides reamer into details 234 and 236.
153	Support	Supports drill motor.
163	Angle Bracket	Supports detail 36 in place.
167	Screw	Secures detail 153 in place.
168	L-Pin	Locates detail 153.
170	Dowel	Aligns detail 153.
180	Screw	Secures detail 188 in place.
188	Retainer	Retains details 234 and 236.
189	Pin	Locate flap in fixture.
193	Drill plate	Supports and locates drill motor.
225	Hand knob	Secures details 42 and 44.
226	Pin	Locates flap in fixture.
227	Pin	Locates flap in fixture.
229	Pin	Locates flap in fixture.
234	Drill bushing	Guides reamer into flap transmission lugs.
236	Drill bushing	Guides reamer into flap transmission lugs.
245	Pin	Locates flap in fixture.
251	T-Pin	Locates detail 36.
252	T-Pin	Locates detail 36.

Figure 2. Transmission Second Oversize Bushing Installation (Sheet 6)

5. IDLER LUG BUSHING REPLACEMENT, FIRST OVERSIZE. See figure 3. The procedure is for bushing replacement, first oversize, even if cause is only bushing damage.

Support Equipment Required

Nomenclature	Part Number or Type Designation
Bore/Reamer, 0.6406	SPT3-RE174190203 (Part of RE274190203-1)
Drill Motor	FSC 5130
Finish Reamer, 0.5015	SPT5-74A190803-5001TD (Part of RE274190203-1)
Micrometer, Inside Caliper	FSC 5210
Repair Kit, Flap, LE Outboard	RE274190203-1

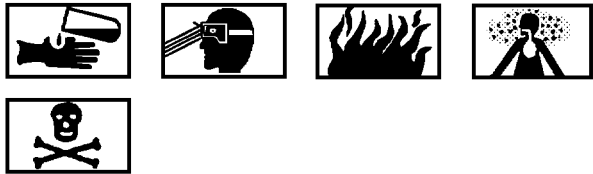
Materials Required

Nomenclature	Specification or Part Number
Bushing	ST4M219-07052

- a. Load flap into fixture by Installation of Outboard Leading Edge Flap into Maintenance Fixture (Damaged Transmission and Idler Bushing) (WP015 03).
- b. Retract support (detail 34) by removing two L-pins (detail 176) from holes in angle bracket (detail 174). Rotate support (detail 34) up and out, reinstall two L-pins (detail 176) in outboard holes in angle bracket (detail 174) to lock support (detail 34) in a retracted position.
- c. Install oversize bushing in outboard idler lug per substeps below:

- (1) Install drill bushing (detail 240) inboard and drill bushing (detail 241) outboard into liner bushings (detail 175), view A.
- (2) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings (details 240 and 241).

- (3) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.
- (4) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.
- (5) Install L-pin (detail 47) into drill bushing (detail 240), inboard idler lug and drill guide (detail 192).
- (6) Install 0.6411 inch bore/reamer into right angle motor (motor).
- (7) Insert 0.6411 inch bore/reamer into drill bushing (detail 241) and start motor and bore/ream outboard idler lug.
- (8) Remove L-pin (detail 47) from drill guide (detail 192), inboard idler lug, and drill bushing (detail 240).
- (9) Loosen drill guides (detail 192).
- (10) Remove two L-pins (detail 176) from inboard holes in angle bracket (detail 174) and rotate support (detail 34) up and out.
- (11) Reinstall L-pin (detail 176) into outboard holes in angle bracket (detail 174) to lock support (detail 34) in retracted position.
- (12) Inspect diameter of bore/reamer holes in outboard idler lugs to 0.6406 inch, plus 0.0020 inch, minus 0.0000 inch with a inside caliper micrometer.
- (13) Install interference fit oversize bushing into outboard lug with bushing installation and removal kit.
- (14) File bushing flush on both sides of outboard idler lug.



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(15) Remove drill bushing (detail 241) from liner bushing (detail 175) outboard idler lug.

(16) Install drill bushing (detail 239) into liner bushing (detail 175) at outboard idler lug.

(17) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings (details 239 and 240).

(18) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(19) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(20) Install L-pin (detail 47) into drill bushing (detail 240), inboard idler lug and drill guide (detail 192).

(21) Remove 0.6411 inch bore/reamer from motor and install 0.5015 inch finish/reamer into motor.

(22) Insert 0.5015 inch finish/reamer into drill bushing (detail 239) and start motor and finish ream outboard idler lug.

(23) Remove L-pin (detail 47) from drill guide (detail 192), inboard idler lug, and drill bushing (detail 240).

(24) Loosen drill guides (detail 192).

(25) Remove two L-pins (detail 176) from inboard holes in angle bracket (detail 174) and rotate support (detail 34) up and out.

d. Install inboard oversize bushing per substeps below:

(1) Remove drill bushing (detail 240) from liner bushing (detail 175) at inboard idler lug.

(2) Install drill bushing (detail 241) into liner bushing (detail 175) at inboard idler lug.

(3) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings (details 239 and 240).

(4) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(5) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(6) Install L-pin (detail 27) into drill bushing (detail 239), outboard idler lug and drill guide (detail 192).

(7) Remove 0.5015 inch finish/reamer from motor and install 0.6411 inch bore/reamer into motor.

(8) Insert 0.6411 inch bore/reamer into drill bushing (detail 241) and start motor and bore/ream inboard idler lug, view A.

(9) Remove L-pin (detail 27) from drill guide (detail 192), outboard idler lug, and drill bushing (detail 239), view A.

(10) Loosen drill guides (detail 192).

(11) Remove two L-pins (detail 176) from inboard holes in angle bracket (detail 174) and rotate support (detail 34) up and out.

(12) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in retracted position.

(13) Inspect diameter of bore/reamer holes in outboard idler lugs to 0.6411 inch, plus 0.0002 inch, minus 0.0000 inch with a inside caliper micrometer.

(14) Press fit oversize bushing into inboard lug with bushing installation and removal tool set.



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(15) File bushing flush both sides of inboard idler lug.

(16) Remove drill bushing (detail 241) from liner bushing (detail 175) at inboard idler lug.

(17) Install drill bushing (detail 239) into liner bushing (detail 175) at inboard idler lug.

(18) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushing (detail 239).

(19) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(20) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(21) Install L-pin (detail 27) into drill bushing (detail 239), outboard idler lug and drill guide (detail 192).

(22) Remove 0.6411 inch bore/reamer from motor and install 0.5015 inch finish/reamer into motor.



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(23) Insert 0.5015 inch finish/reamer into drill bushing (detail 239) and start motor and finish ream outboard idler lug.



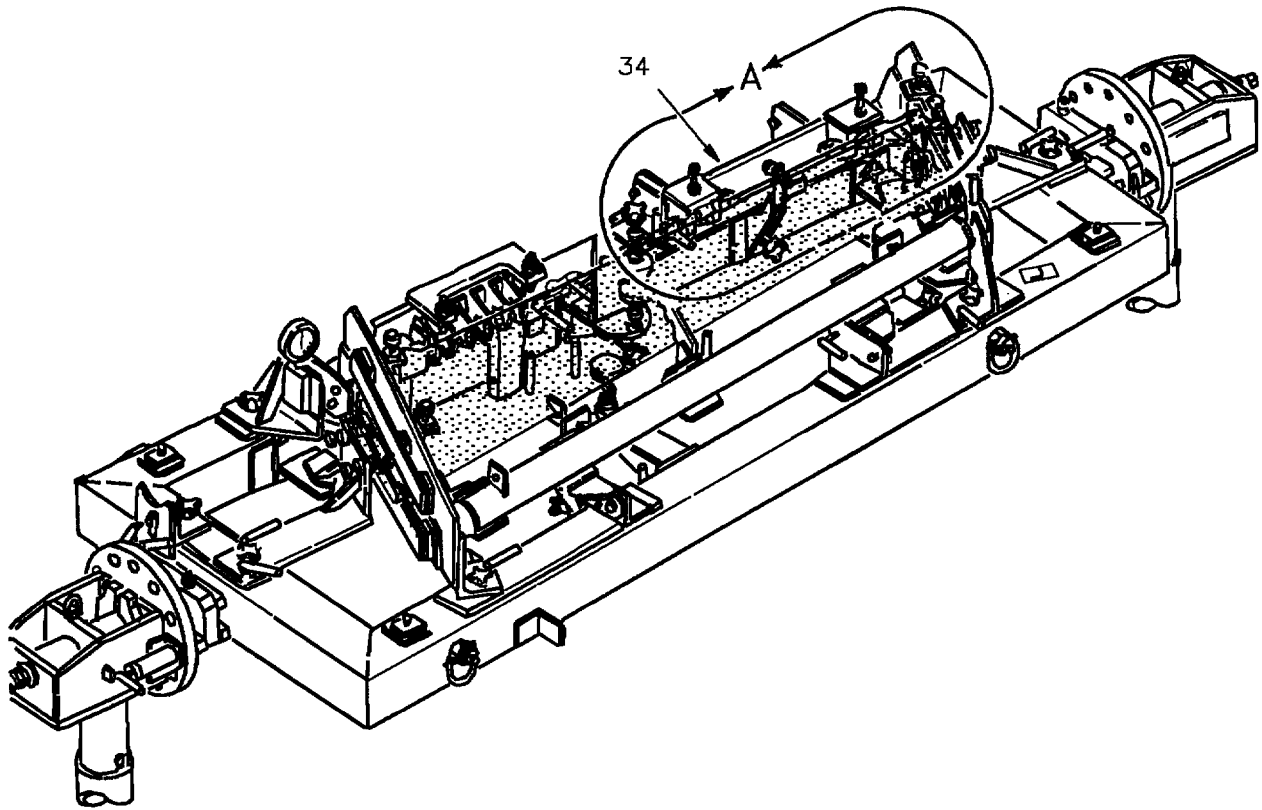


Figure 3. Idler Lug First Oversize Bushing Installation (Sheet 1)

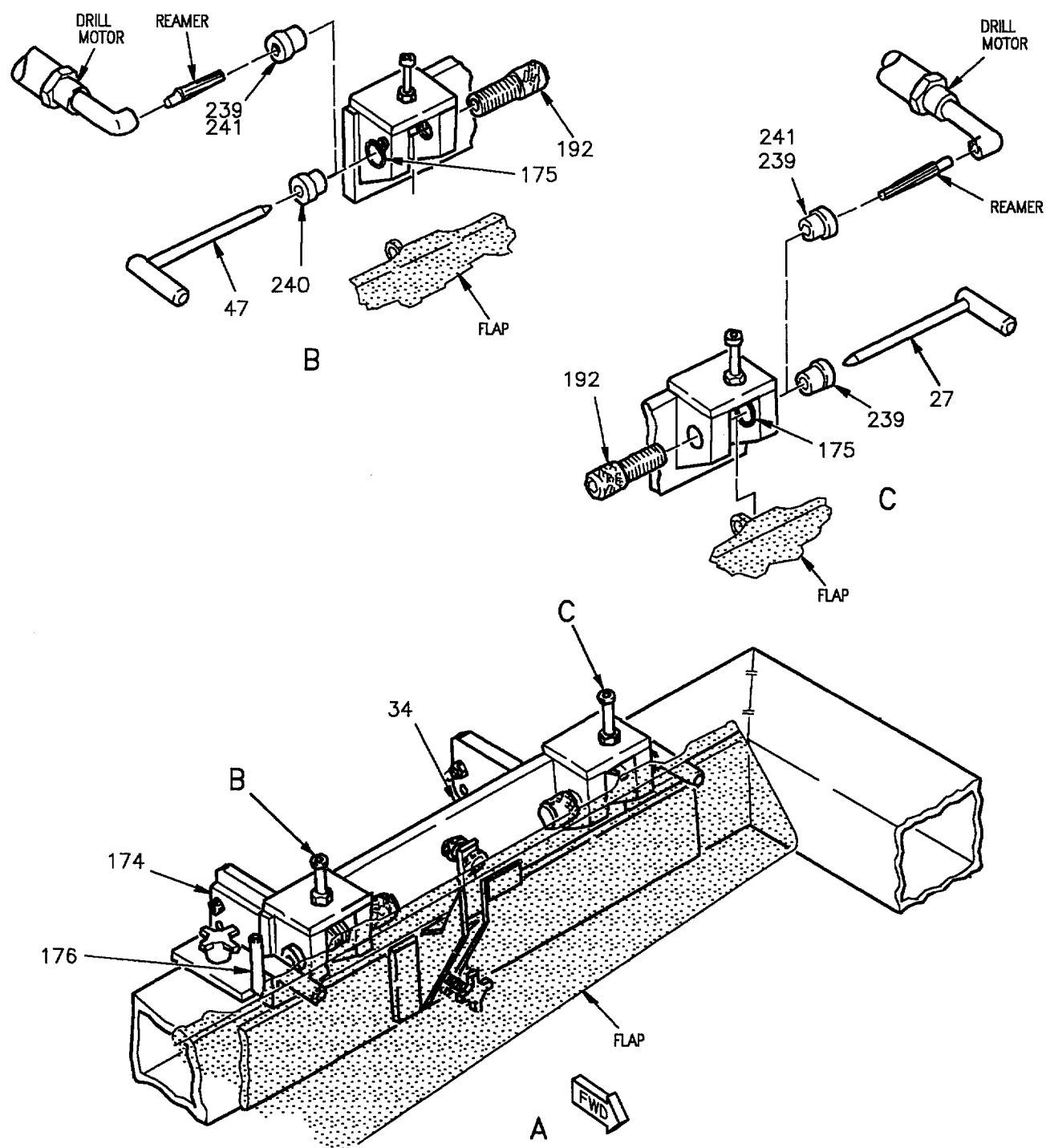


Figure 3. Idler Lug First Oversize Bushing Installation (Sheet 2)

Detail No.	Name	Function
27	L-Pin	Supports and aligns flap.
34	Support	Supports and rotates various details.
47	L-Pin	Supports and aligns flap.
174	Angle bracket	Supports detail 34 in place.
175	Liner bushing	Supports and aligns details 239, 240, and 241.
176	L-Pin	Locates detail 34.
192	Drill guide	Guides reamer into flap idler lug.
239	Drill bushing	Guides reamer into flap idler lug.
240	Drill bushing	Guides reamer into flap idler lug.
241	Drill bushing	Guides reamer into flap idler lug.

Figure 3. Idler Lug First Oversize Bushing Installation (Sheet 3)

## 6. IDLER LUG BUSHING REPLACEMENT, SECOND OVERSIZE. See figure 4.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Bore/Reamer, 0.6630	SPT4-RE174190203 (Part of RE274190203-1)
Cylinder	RD93
Drill Motor	FSC 5130
Finish Reamer, 0.5015	SPT5-74A190803-5001TD (Part of RE274190203-1)
Micrometer, Inside Caliper	FSC 5210
Pump	74D110323-1001
Repair Kit, Flap, LE Outboard	RE274190203-1

### Materials Required

Nomenclature	Specification or Part Number
Bushing	ST4M219-07053
Cheesecloth	CCC-C-440, Type 1, Class 1
Isopropyl Alcohol	TT-I-735, Grade 1

a. Load flap per paragraph 5.

b. Retract support (detail 34) by removing two L-pins (detail 176) from holes in angle bracket (detail 174). Rotate support (detail 34) up and out, reinstall two L-pins (detail 176) in outboard holes in angle bracket (detail 174) to lock support (detail 34) in a retracted position.

c. Install oversize bushing in outboard idler lug per substeps below:

(1) Install drill bushing (detail 241) inboard and drill bushing (detail 242) outboard into liner bushings (detail 175), view A.

(2) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings (details 241 and 242).

(3) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(4) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(5) Install L-pin (detail 46) into drill bushing (detail 241), inboard idler lug and drill guide (detail 192).

(6) Install 0.6630 inch bore/reamer into right angle motor (motor).

(7) Insert 0.6630 inch bore/reamer into drill bushing (detail 242) and start motor and bore/ream outboard idler lug.

(8) Remove L-pin (detail 46) from drill guide (detail 192), inboard idler lug, and drill bushing (detail 241).

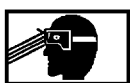
(9) Loosen drill guides (detail 192).

(10) Remove two L-pins (detail 176) from inboard holes in angle bracket (detail 174) and rotate support (detail 34) up and out.

(11) Reinstall L-pin (detail 176) into outboard holes in angle bracket (detail 174) to lock support (detail 34) in retracted position.

(12) Inspect diameter of bore/reamer holes in outboard idler lugs to 0.6630 inch, plus 0.0002 inch, minus 0.0000 inch with a inside caliper micrometer.

(13) Force mate flap idler bushings, view B, per substeps below:



Isopropyl Alcohol

2



To avoid contamination of isopropyl alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into isopropyl alcohol.

(a) Clean outside diameter replacement bushings and flap idler lugs and holes with a clean cheesecloth dampened with isopropyl alcohol until both are free of metal chips, paint and lubricants.

(b) Assemble pull cylinder and force mate anvil.

(c) Install oversize bushings by slip fitting bushing into holes in outboard flap idler lugs, views A and B.

(d) Insert pull cylinder with force mate anvil through installed bushings.

(e) Install mandrel or pull cylinder, view B.

(f) Make sure the force mate anvil is firmly supported against the inboard side of the outboard flap idler lug.

(g) Actuate pull cylinder to pull the mandrel through the bushing to expand the bushing in place and cold work the lug.



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(14) File bushing flush on both sides of outboard idler lug.

(15) Remove drill bushing (detail 242) from liner bushing (detail 175) outboard idler lug.

(16) Install drill bushing (detail 239) into liner bushing (detail 175) at outboard idler lug.

(17) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill guides (details 239 and 240).

(18) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(19) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(20) Install L-pin (detail 46) into drill bushing (detail 241), inboard idler lug and drill guide (detail 192).

(21) Remove 0.6630 inch bore/reamer from motor and install 0.5015 inch finish reamer into motor.



Beryllium

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(22) Insert 0.5015 inch finish reamer into drill bushing (detail 239) and start motor and finish ream outboard idler lug.

d. Install inboard oversize bushing per substeps below:

(1) Install L-pin (detail 27) into drill bushing (detail 239), outboard idler lug and drill guide (detail 192).

(2) Remove L-pin (detail 46) from drill guide (detail 192), inboard idler lug and drill bushing (detail 241).

(3) Remove drill bushing (detail 241) from liner bushing (detail 175) at inboard idler lug.

(4) Install drill bushing (detail 242) into liner bushing (detail 175) at inboard idler lug.

(5) Install 0.6630 inch bore/reamer into motor.

(6) Insert 0.6630 inch bore/reamer into drill bushing (detail 242) and start motor and bore/ream inboard idler lug, view A.

(7) Remove L-pin (detail 27) from drill guide (detail 192), outboard idler lug, and drill bushing (detail 239), view A.

(8) Loosen drill guides (detail 192).

(9) Remove two L-pins (detail 176) from inboard holes in angle bracket (detail 174) and rotate support (detail 34) up and out.

(10) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in retracted position.

(11) Inspect diameter of bore/reamer holes in outboard idler lugs to 0.6630 inch, plus 0.0002 inch, minus 0.0000 inch with a inside caliper micrometer.

(12) Force mate flap idler bushings, view B, per substeps below:



Isopropyl Alcohol

2



To avoid contamination of isopropyl alcohol, always pour onto clean cheesecloth. Never dip cheesecloth into isopropyl alcohol.

(a) Clean outside diameter replacement bushings and flap idler lugs and holes with a clean cheesecloth dampened with isopropyl alcohol until both are free of metal chips, paint and lubricants.

(b) Assemble pull cylinder and force mate, anvil.

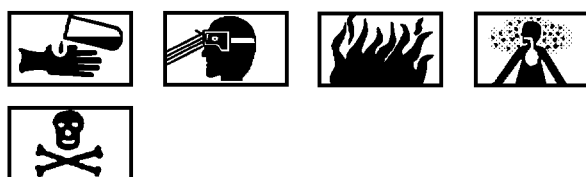
(c) Install oversize bushings by slip fitting bushing into holes in outboard flap idler lugs, views A and B.

(d) Insert pull cylinder with force mate anvil through installed bushings.

(e) Install mandrel or pull cylinder, view B.

(f) Make sure the force mate anvil is firmly supported against the inboard side of the outboard flap idler lug.

(g) Actuate pull cylinder to pull the mandrel through the bushing to expand the bushing in place and cold work the lug.



Beryllium

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(13) File bushing flush on both sides of outboard idler lug.

(14) Remove drill bushing (detail 242) from liner bushing (detail 175) outboard idler lug.

(15) Install drill bushing (detail 239) into liner bushing (detail 175) at outboard idler lug.

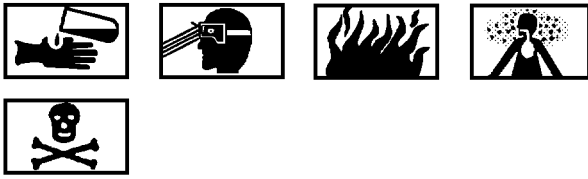
(16) Remove two L-pins (detail 176) from outboard holes in angle bracket (detail 174) and rotate support (detail 34) up and in. Inspect flap idler lugs for proper meshing with drill bushings (detail 239).

(17) Reinstall two L-pins (detail 176) into inboard holes in angle bracket (detail 174) to lock support (detail 34) in place.

(18) Hand tighten drill guides (detail 192) inboard and outboard until drill guides (detail 192) are tight against both idler lugs.

(19) Install L-pin (detail 27) into drill bushing (detail 241), inboard idler lug and drill guide (detail 192).

(20) Remove 0.6630 inch bore/reamer from motor and install 0.5015 inch finish reamer into motor.



Beryllium

23

(21) Insert 0.5015 inch finish reamer into drill bushing (detail 239) and start motor and finish ream outboard idler lug.

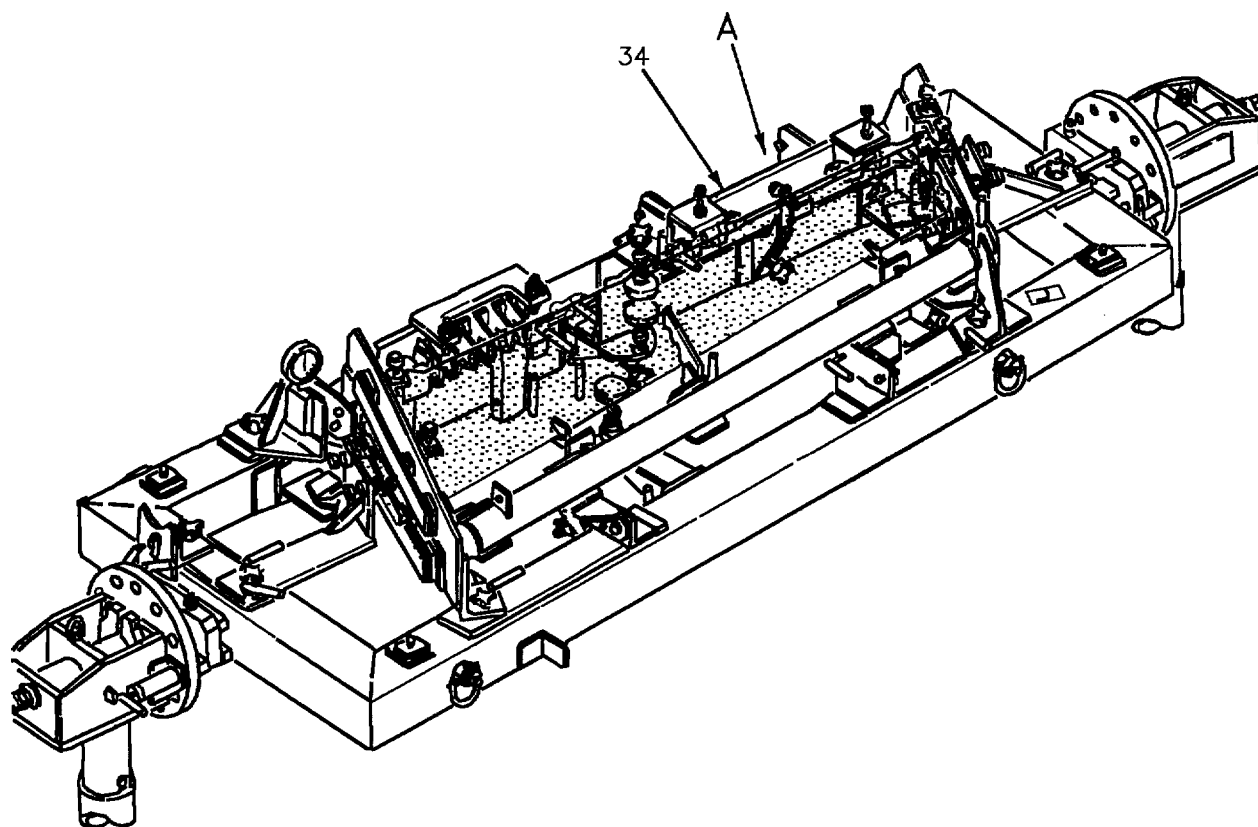


Figure 4. Idler Lug Second Oversize Bushing Installation (Sheet 1)





Detail No.	Name	Function
27	L-Pin	Supports and aligns flap.
34	Support	Supports and rotates various details.
46	L-Pin	Supports and aligns flap.
174	Angle bracket	Supports detail 34 in place.
175	Liner bushing	Supports and aligns details 239, 240, and 241.
176	L-Pin	Locates detail 34.
192	Drill guide	Guides reamer into flap idler lug.
239	Drill bushing	Guides reamer into flap idler lug.
241	Drill bushing	Guides reamer into flap idler lug.
242	Drill bushing	Guides reamer into flap idler lug.

Figure 4. Idler Lug Second Oversize Bushing Installation (Sheet 3)

## 7. LEADING EDGE SKIN REPLACEMENT AND TRIM. See figure 5.

### Support Equipment Required

None

### Materials Required

#### NOTE

Alternate item specifications or part numbers are listed in parentheses.

Nomenclature	Specification or Part Number
Rivet, Blind	NAS1399D4A( )
Sealing Compound	MIL-S-81733 (MIL-S-8802)

a. Load flap into fixture by Installation of Outboard Leading Edge Flap into Maintenance Fixture (Undamaged Transmission and Idler Bushing) (WP015 03).

b. Remove L-pin (detail 138) from plate (detail 12E) and angle bracket (detail 137). Rotate support (detail 12) up and in. Install two L-pins (detail 110) into plate (detail 128) and support (detail 12) locking support (detail 12) in place.

c. Adjust contour boards (details 132, 133, and 134) by removing L-pins (detail 147) and loosening screws (detail 150) and making sure the contour boards (details 132, 133, and 134) are in full contact with upper mold line of flap at positions 1 and 2. While maintaining this contact secure contour boards (details 132, 133, and 134) with screws (detail 150), view B.

d. For locating trim lines and blind holes (A1-F18AC-SRM-200, WP004 03).

e. Fay seal mating surfaces of flap and replacement leading edge skin with MIL-S-81733 sealant (A1-F18AC-SRM-200, WP011 00).

f. Install leading edge skin on flap, make sure the upper mold line of the leading edge is in full contact with contour boards (details 132, 133, and 134) at position 3, view B.

g. Drill 0.1285 inch holes and countersink holes with a 100° countersink in replacement leading edge skin.



Sealing Compound

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Sealing Compound

9

h. Install NAS1399D4A( ) blind rivets wet with MIL-S-81733 sealant (A1-F18AC-SRM-200, WP011 00), length of blind rivets is determined on installation (NAVAIR 01-1A-8).

i. Inspect transmission pins (detail 227) and idler lug L-pins (detail 27) for free rotation to make sure flap is not misaligned in fixture, views G and H.

j. When flap is found to be misaligned in fixture, readjust knurled nut (detail 141) or thumbscrews (detail 23, 28, 29, or 31).

k. Trim inboard edge of leading edge skin flush with contour boards (details 125 and 126), view C.

l. Trim outboard edge of leading edge skin flush with contour boards (details 105), view D.

m. Inspect trimmed edge of leading edge skin with GO-NO-GO gage (detail 200) along inboard and outboard contour boards (details 105, 125, and 126), views E and F.

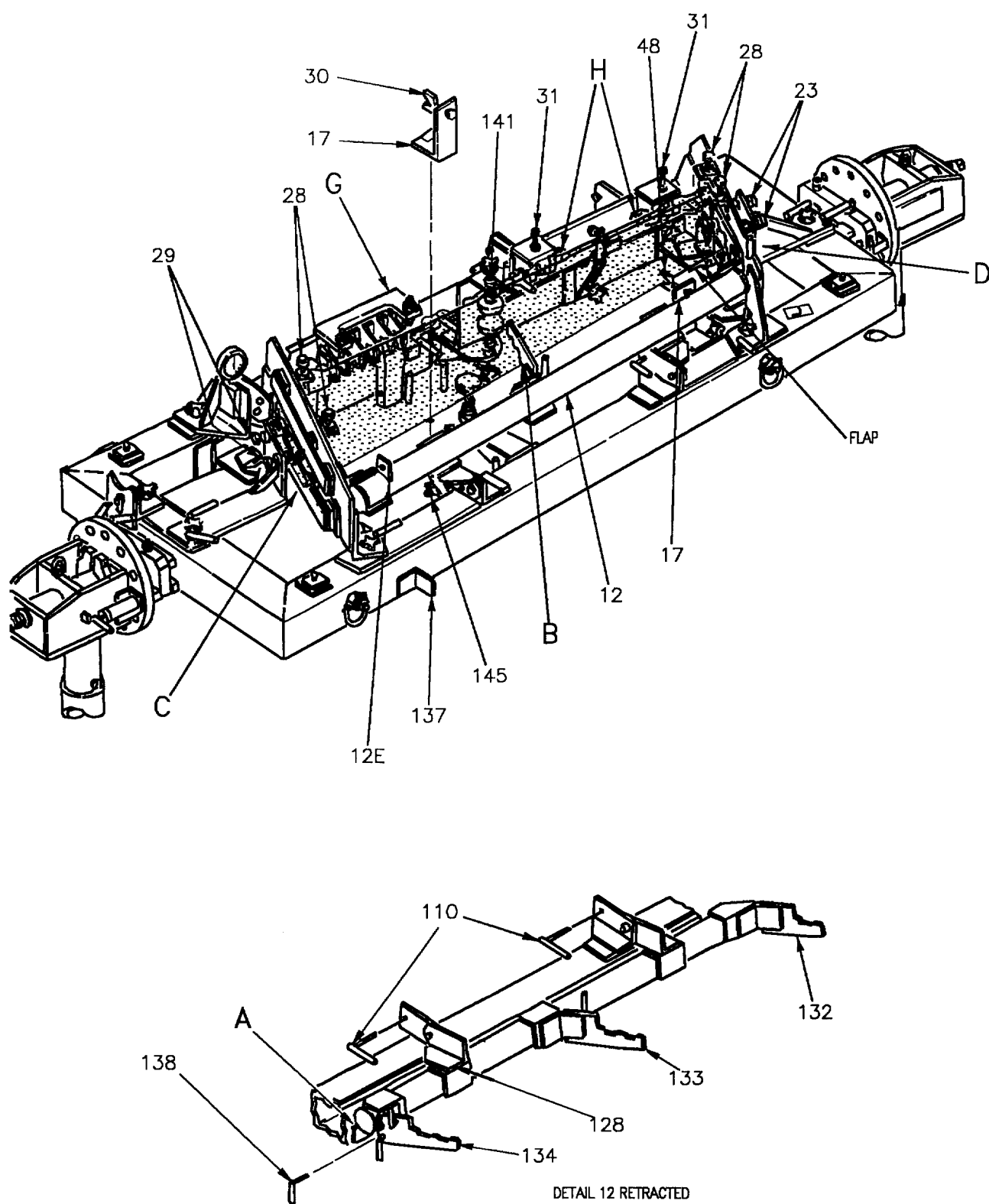
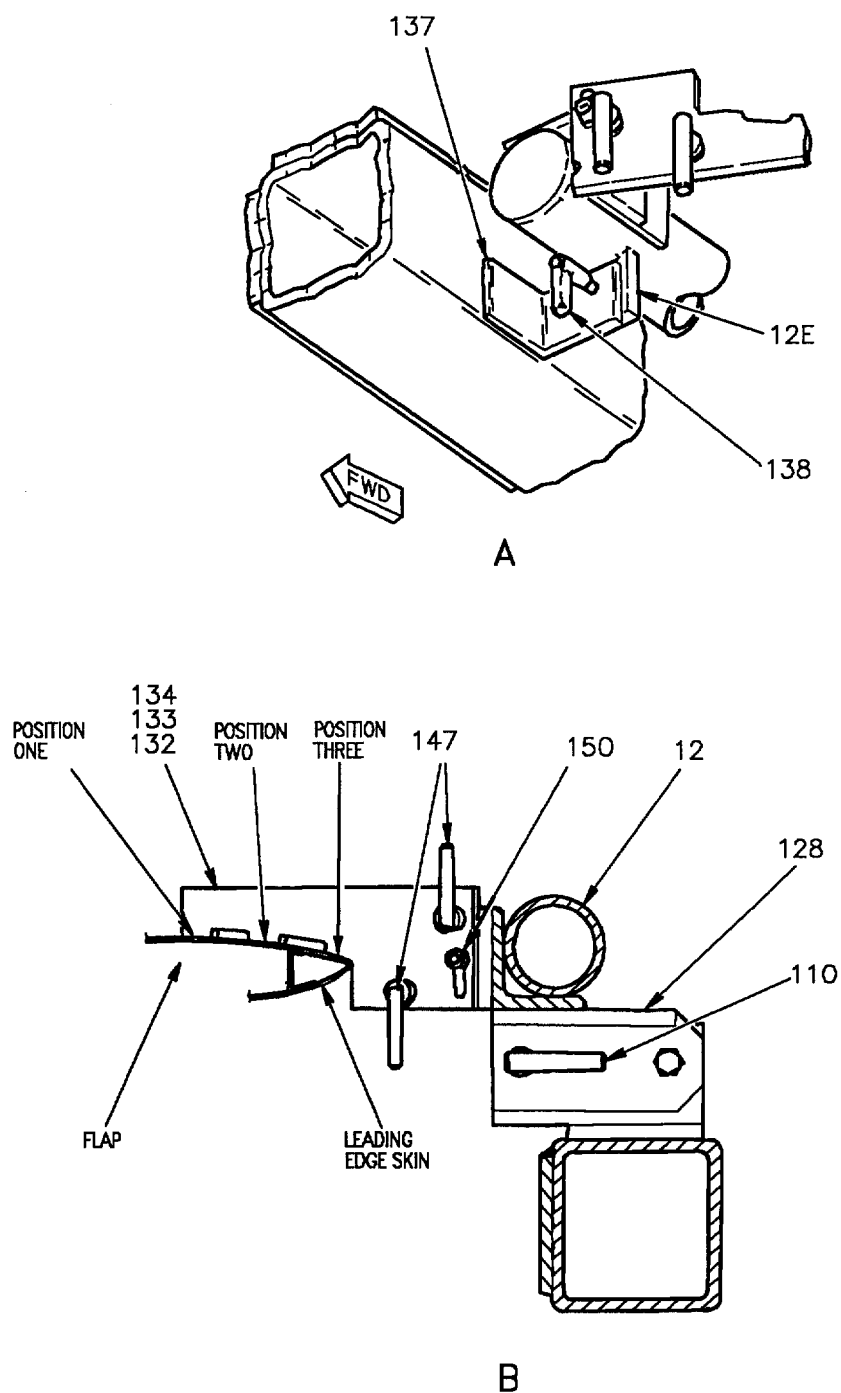
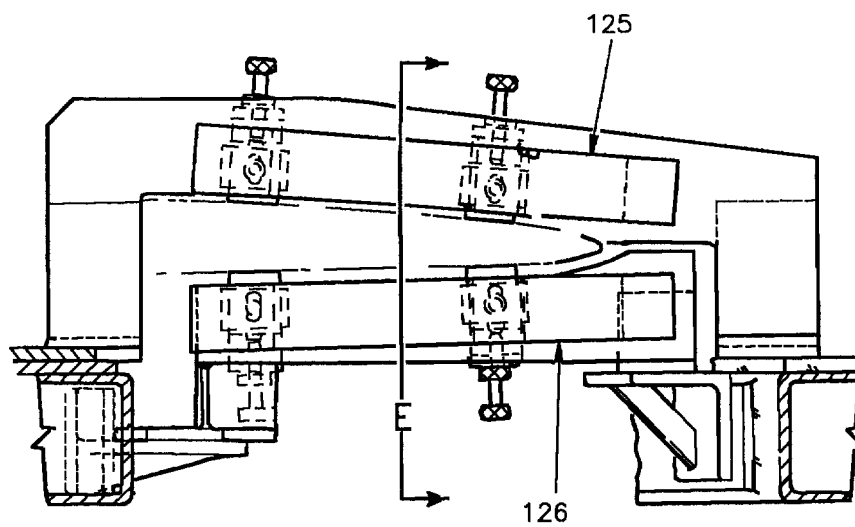


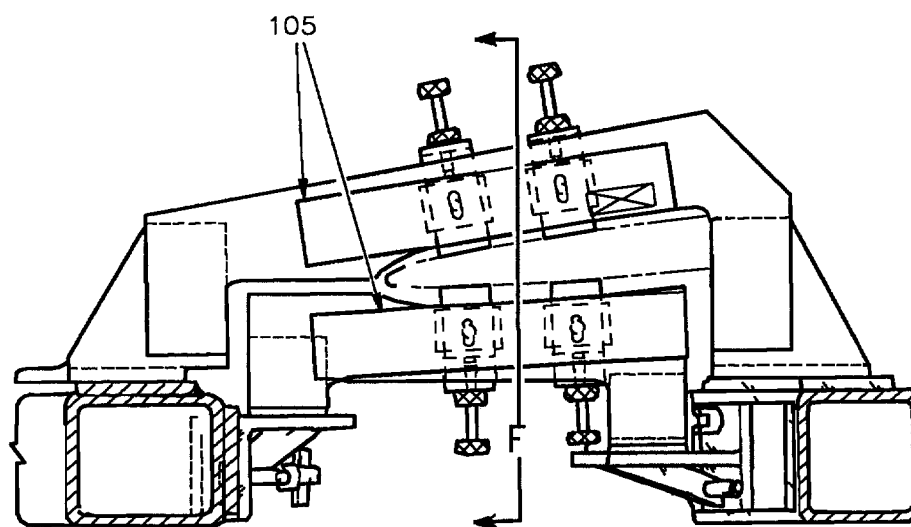
Figure 5. Leading Edge Skin Replacement and Trim (Sheet 1)



**Figure 5. Leading Edge Skin Replacement and Trim (Sheet 2)**



C



D

Figure 5. Leading Edge Skin Replacement and Trim (Sheet 3)

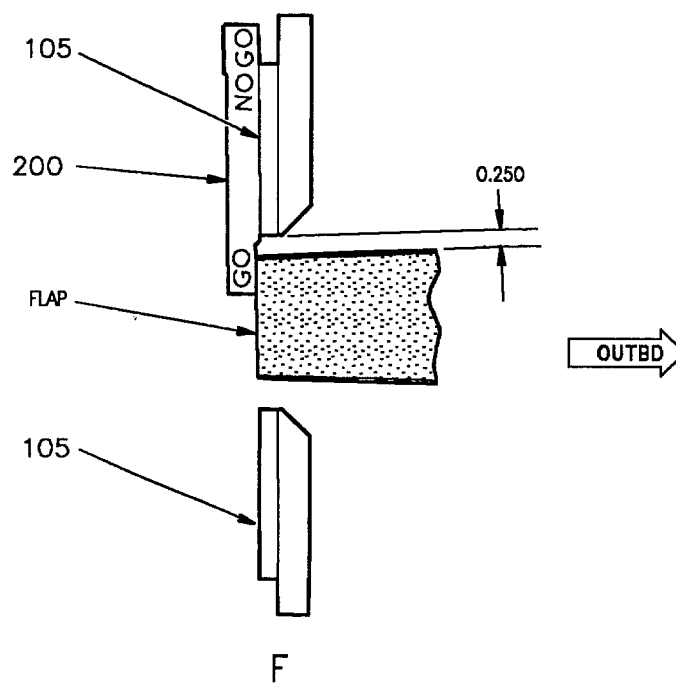
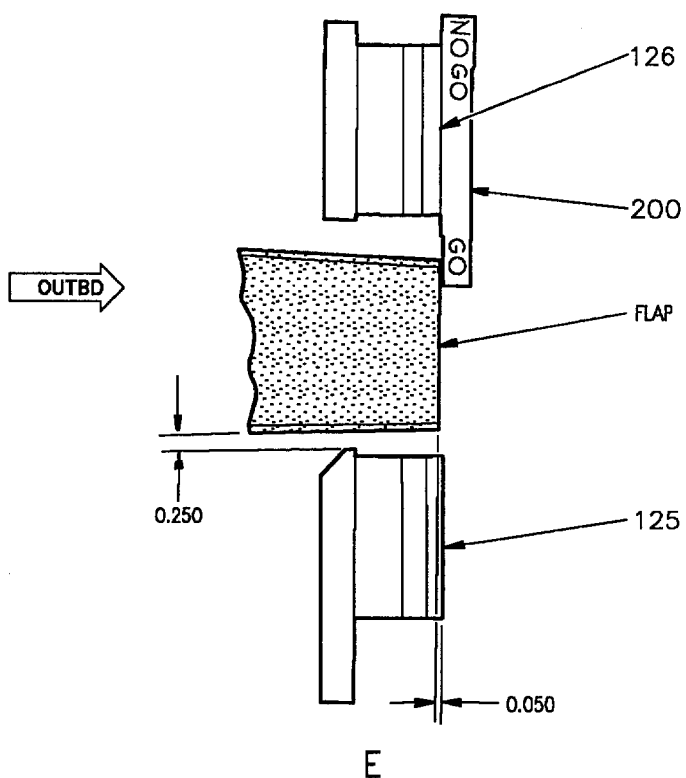
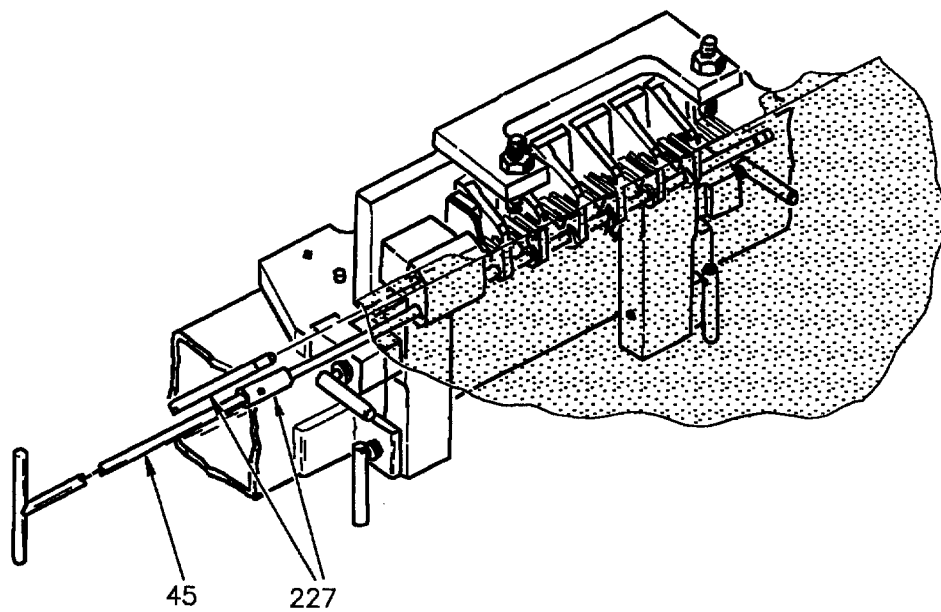
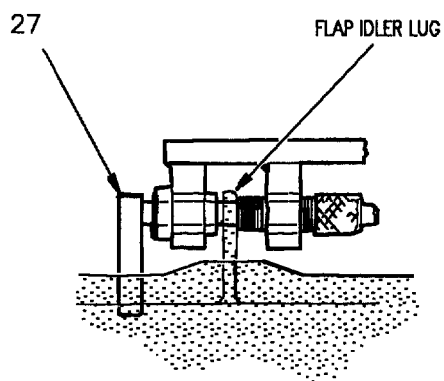


Figure 5. Leading Edge Skin Replacement and Trim (Sheet 4)



G



H

Figure 5. Leading Edge Skin Replacement and Trim (Sheet 5)



Detail No.	Name	Function
12	Support	Supports and rotates details 132, 133 and 134.
12E	Plate	Supports detail 12 in retracted position.
17	Support	Supports details 30 and 48.
23	Thumbscrew	Secures flap in place.
27	L-Pin	Supports and aligns flap.
28	Thumbscrew	Secures flap in place.
29	Thumbscrew	Secures flap in place.
30	Clamp	Supports and aligns flap.
31	Thumbscrew	Secures flap in place.
48	Clamp	Supports and aligns flap.
105	Contour board	Supports and aligns flap.
110	L-Pin	Locates details 12 and 17.
125	Contour board	Supports and aligns flap.
126	Contour board	Supports and aligns flap.
128	Plate	Supports detail 12 in place.
132	Contour board	Supports and aligns leading edge skin during replacement.
133	Contour board	Supports and aligns leading edge skin during replacement.
134	Contour board	Supports and aligns leading edge skin during replacement.
137	Angle bracket	Supports detail 12 in retracted position.
138	L-Pin	Locates detail 12.
141	Knurled nut	Locks detail 144 in place.
145	Hand knob	Secures detail 17.
147	L-Pin	Locates details 132, 133 and 134.
150	Screw	Secures details 132, 133 and 134.
200	Go-No Go gage	Inspects for correct trim inboard and outboard edge of leading edge
227	Pin	Locates flap in fixture.

Figure 5. Leading Edge Skin Replacement and Trim (Sheet 6)

## 8. UPPER AND LOWER SEAL REPLACEMENT AND TRIM. See figure 6.

### Support Equipment Required

Nomenclature	Part Number or Type Designation
Thickness Gage	FSC 5210

### Materials Required

#### NOTE

Alternate item specifications or part numbers are shown indented.

Nomenclature	Specification or Part Number
Rivet	BRFS5T( )
Rivet	CSR902B-5-( )
Sealing Compound	MIL-S-81733 (MIL-S-8802)

a. Load flap into fixture by Installation of Outboard Leading Edge Flap into Maintenance Fixture (Undamaged Transmission and Idler Bushing) (WP015 03).

b. Remove two L-pins (detail 27) from support (detail 34) and flap idler lugs, view C.

c. Retract support (detail 34) by removing two L-pins (detail 176) from holes in angle bracket (detail 174), swing support (detail 34) up and out, reinstall two L-pins (detail 176) in outboard holes in angle bracket (detail 174) to lock support (detail 34) in a retracted position.

d. Install angle bracket (detail 183) and support (detail 26) on frame (detail 11) with hand knob (detail 109), view C. Install pin (detail 27) through support (34).

e. Remove outboard lower contour board (detail 104) by removing two hand knobs (details 109 and 246) and two L-pins (detail 110), view A.

f. Install four locators (detail 185) with two supports (detail 187) and two angle brackets (detail 184) to frame (detail 11) with two hand knobs (detail 109), views B and C.

g. Install two locators (detail 186) and two angle brackets (detail 184) to frame (detail 11) with two L-pins (detail 110) and two hand knobs (detail 109), views A and C.



Sealing Compound

10



Sealing Compound

9

h. Fay seal mating surfaces of flap and replacement seals with MIL-S-81733 sealant (A1-F18AC-SRM-200, WP011 00).

i. Position seals on flap using locators (detail 185 or 186) and thickness gage, views D or E.

j. For locating trim lines (A1-F18AC-SRM-200, WP004 03).

k. Mate drill 0.1610 inch holes and countersink holes with a 100° countersink in replacement seals.

l. Install BRFS5T( ) rivets wet with sealant into lower seals (A1-F18AC-SRM-200, WP011 00), length of rivets is determined on installation (NAVAIR 01-1A-8).

m. Install CRS902B-5-( ) rivets wet with sealant into upper seals (A1-F18AC-SRM-200, WP011 00), length of rivets is determined on installation (NAVAIR 01-1A-8).

n. Install support (detail 17) with clamp (detail 30) by installing two L-pins (detail 110) and hand knob (detail 145).

o. Install support (detail 17) with clamp (detail 48) by installing two L-pins (detail 110) and hand knob (detail 145).

p. Install outboard lower contour board (detail 104) by installing two L-pins (detail 110) and two hand knobs (details 109 and 246), view A.

q. Inspect transmission pins (detail 227) and idler lug L-pins (detail 27) for free rotation to make sure flap is not misaligned in fixture, views B, C and F.

r. When flap is found to be misaligned in fixture, readjust knurled nut (detail 141) or thumbscrews (detail 23, 28, 29, or 31), views A and B.

s. Trim outboard lower seal flush with contour board (detail 105), view G.

t. Inspect trimmed edge of outboard lower seal with GO/NO-GO gage (detail 200) along lower outboard contour board (detail 105), views G and H.

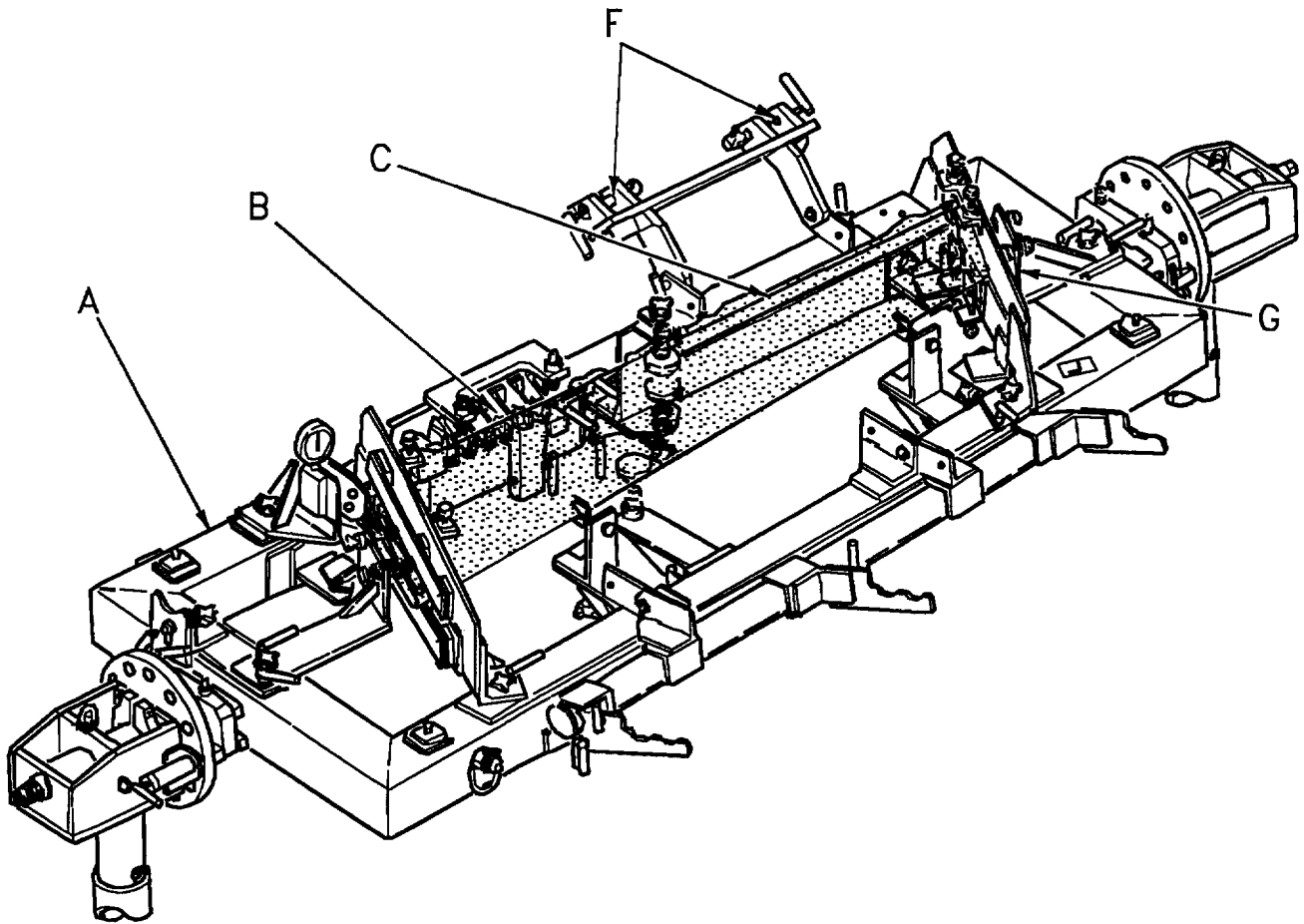


Figure 6. Seals Replacement and Trim (Sheet 1)

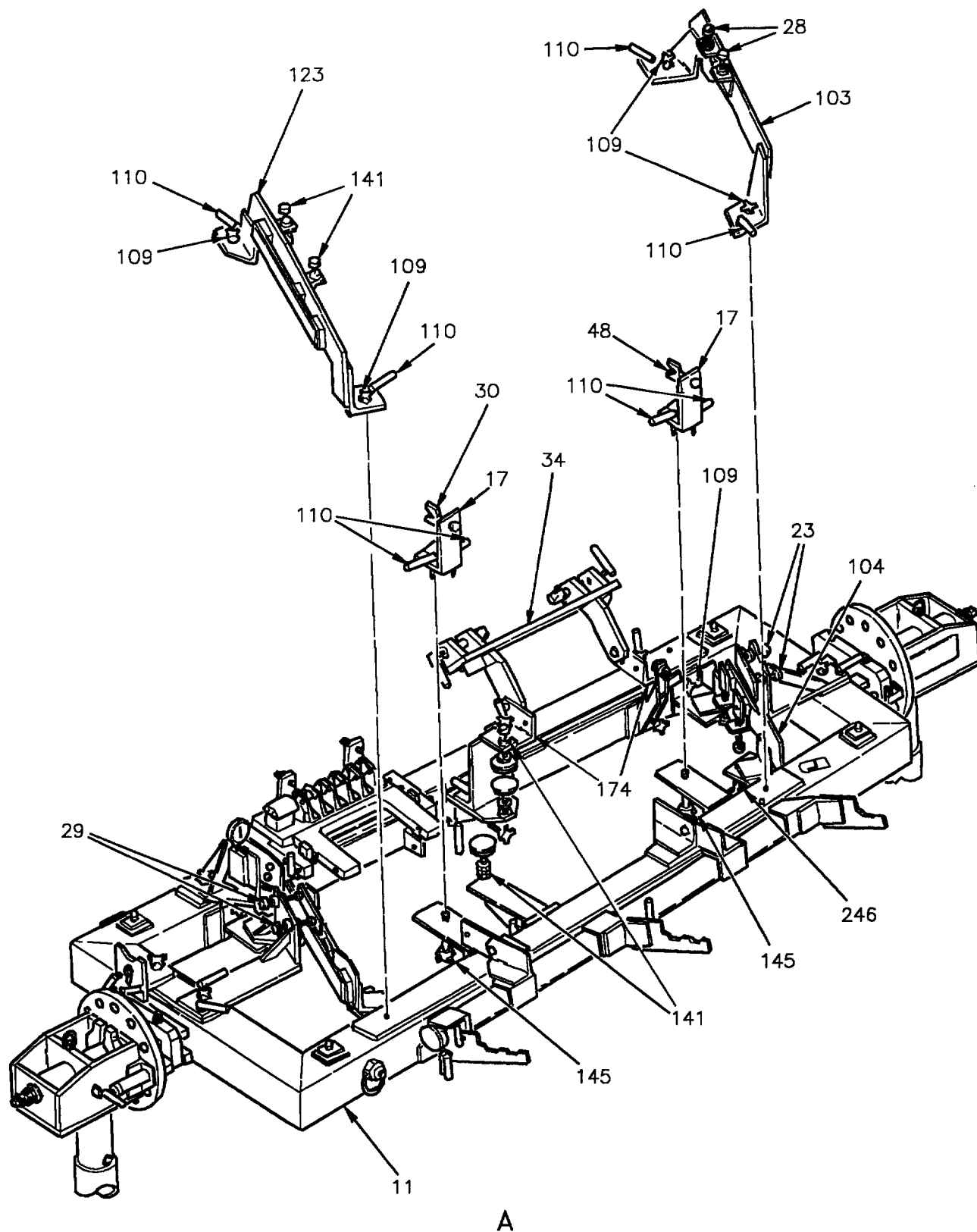


Figure 6. Seals Replacement and Trim (Sheet 2)

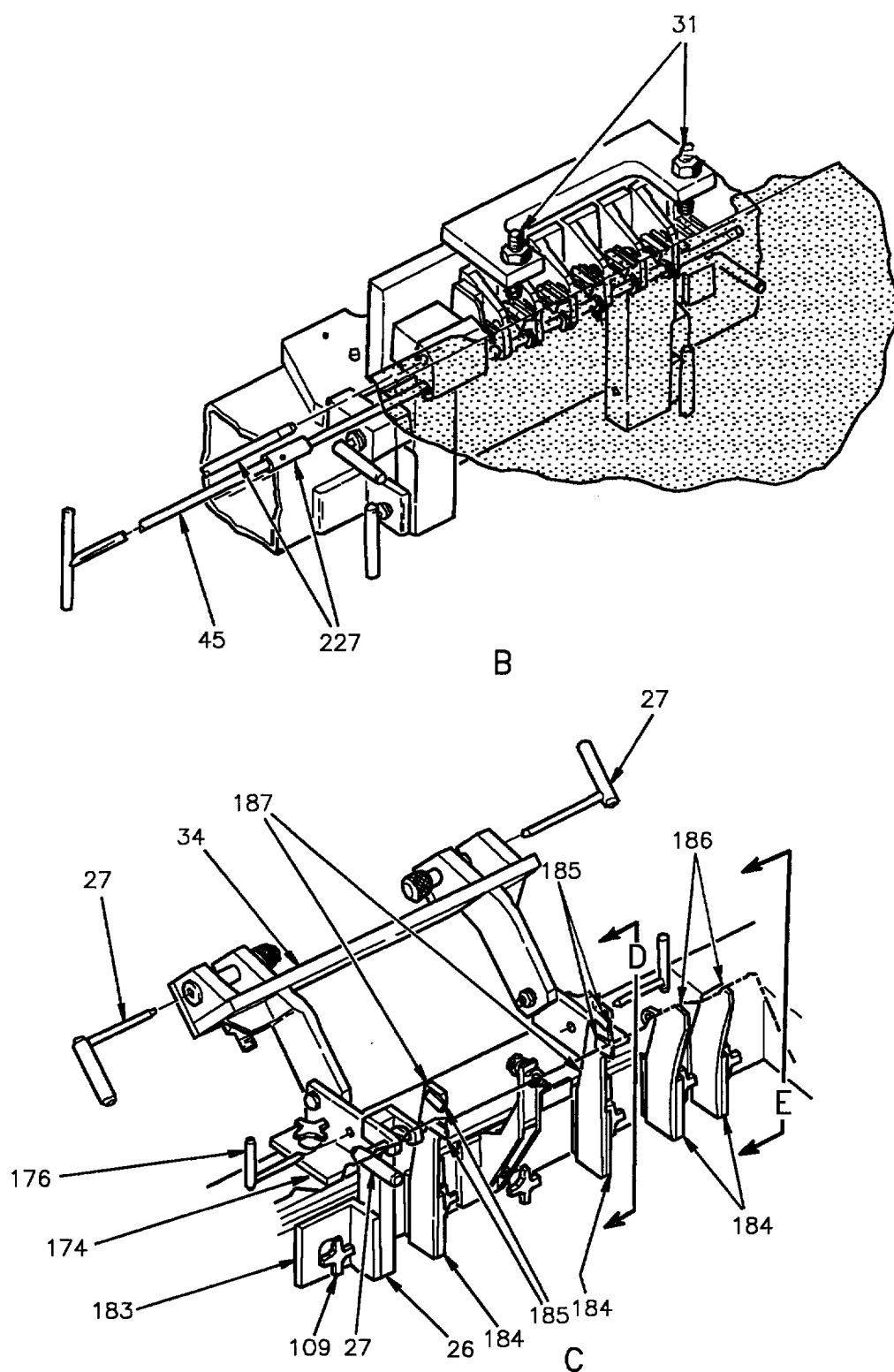
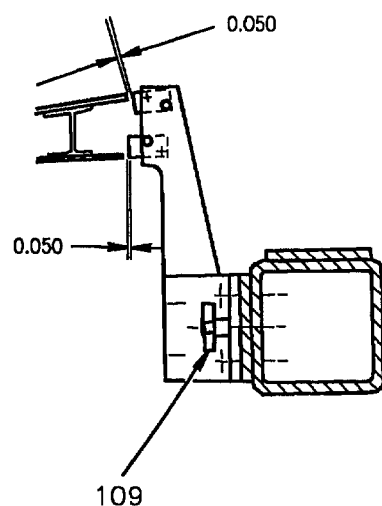
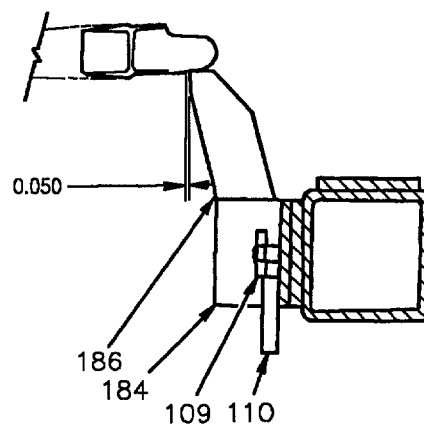


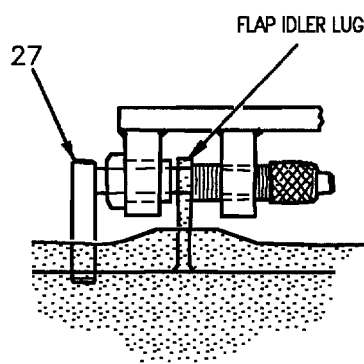
Figure 6. Seals Replacement and Trim (Sheet 3)



D  
TYP 2 PLACES



E  
TYP 2 PLACES



F

Figure 6. Seals Replacement and Trim (Sheet 4)

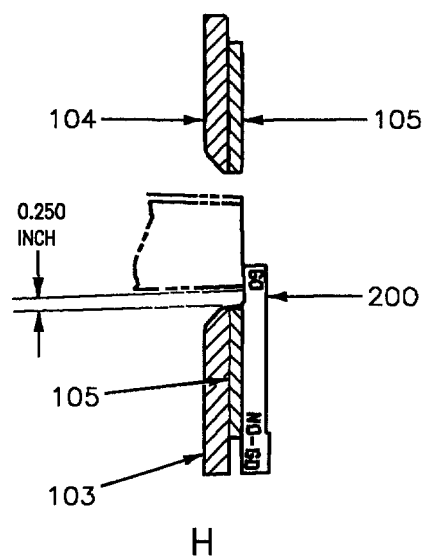
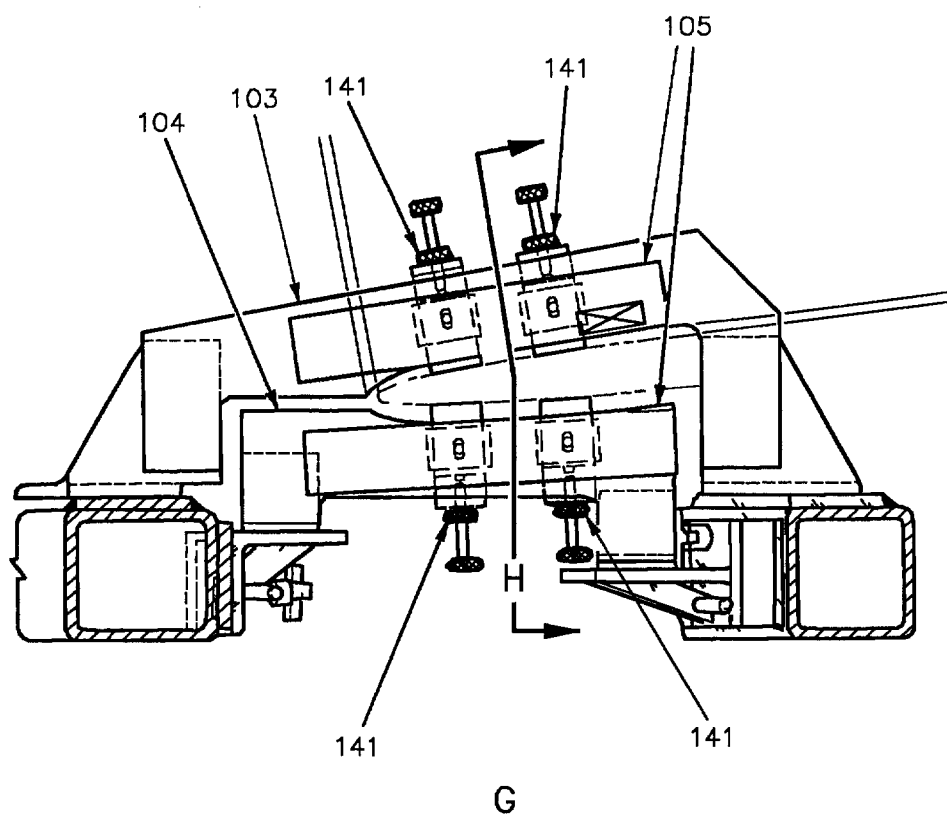


Figure 6. Seals Replacement and Trim (Sheet 5)

Detail No.	Name	Function
11	Frame	Supports and aligns flap and all details.
17	Support	Supports details 30 and 48.
23	Thumbscrew	Secures flap in place.
26	Support	Supports and aligns flap and detail 27.
27	L-Pin	Supports and aligns flap.
28	Thumbscrew	Secures flap in place.
29	Thumbscrew	Secures flap in place.
30	Clamp	Supports and aligns flap.
31	Thumbscrew	Secures flap in place.
34	Support	Supports and rotates detail 27.
48	Clamp	Supports and aligns flap.
104	Contour board	Supports and aligns flap.
105	Contour board	Supports and aligns flap.
109	Hand knob	Secures details 104 and 184.
110	L-Pin	Locates detail 184.
141	Knurled nut	Locks stud in place.
145	Hand knob	Secures detail 17.
174	Angle bracket	Supports detail 34 in place.
176	L-Pin	Locates detail 34.
183	Angle bracket	Supports detail 26.
184	Angle bracket	Supports details 186 and 187.
185	Locators	Locates seals during replacement.
186	Locators	Locates seals during replacement.
187	Support	Supports detail 185.
200	Go-No Go gage	Inspects for correct trim outboard edge of seal.
227	Pin	Locates flap in fixture.
246	Hand knob	Secures detail 104.

Figure 6. Seals Replacement and Trim (Sheet 6)



## 9. UPPER AND LOWER FAIRING REPLACEMENT. See figure 7.

### Support Equipment Required

None

### Materials Required

#### NOTE

Alternate item specifications or part numbers are shown indented.

Nomenclature	Specification or Part Number
Apron, Utility	MIL-A-41829
Bonding Primer	PR182
Cheesecloth	CCC-C-440, Type 1, Class 1
Gloves, Chemical	ZZ-G-381, Type 1, Style 1
Gloves, Cotton Work, Men's	MIL-G-3866, Type 1
Isopropyl Alcohol	TT-I-735, Grade 1
Mat, Abrasive	MIL-A-9962
Rivet, Blind	NAS1399D5A-( )
Sealing Compound	MIL-S-83430 MIL-S-8802

- a. Place flap on a well padded bench.
- b. Remove damaged fairing per substeps below:



Use extreme care when removing the fairing to avoid damaging the flap.

Be careful not to enlarge holes when drilling out rivets.

- (1) Remove rivets attaching fairing to leading edge flap.
- (2) Use scraper to cut sealing compound bond line.

(3) Remove the fairing by using a peeling action. Start removal at forward tip or at aft corners and while peeling, cut sealing compound with scraper.

(4) After removal of fairing, clean up bond surface.

(5) Cut off thicker sections of sealing compound with a scraper.



Isopropyl Alcohol



2



To avoid contamination of isopropyl alcohol, always pour onto abrasive mat. Never dip abrasive mat into isopropyl alcohol.

(6) Rub off thin film of remaining sealing compound with abrasive mat and isopropyl alcohol.

- c. Install fairing per substeps below.

(1) Mate drill rivet holes (details A and B). For locating blind holes (A1-F18AC-SRM-200, WP004 03).

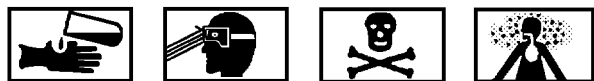


To avoid contamination of isopropyl alcohol always pour onto clean cheesecloth. Never dip cheesecloth into isopropyl alcohol.

(2) Thoroughly clean the bond area (flap and fairing) with clean cheesecloth moistened with isopropyl alcohol. Following each alcohol scrubbing, wipe with clean dry cheesecloth before the alcohol evaporates to remove and disperse contaminants.

(3) Continue cleaning operation until an oil-free, water-break-free surface is obtained. During this cleaning operation, it is required that clean cheesecloths and clean isopropyl alcohol be used.

(4) After cleaning procedure starts, do not touch surfaces to be bonded with bare hands. Operators shall wear clean gloves while handling parts. If desired, rubber gloves may be worn underneath the cotton gloves.



Bonding Primer

16

(5) Apply a thin coat of bonding primer PR182 to faying surfaces of the fairing and metal structures which will come in contact when the fairing is installed. Apply by wiping with cheesecloth and allow to air dry for a minimum of 1 hour at room temperature.

(6) Install subassembly A on inboard end of flap by setting support (detail 206) flush with flap spar, view B.

(7) Set locator (detail 205) flush with upper mold line of flap, view B.

(8) Set locators (detail 209, 210, 211, and 212) flush with inboard edge, views D and E.



Sealing Compound

10



Sealing Compound

9

(9) Apply a single heavy bead of MIL-S-83430 sealing compound to all areas of fairings that will mate with flap, views G and J.

(10) Install upper fairing under upper locators (details 209 and 210) and aft against locator (detail 207), views A, D, and E.

(11) Install lower fairing under lower locators (details 213 and 214) and aft against locator (detail 208), views A, D, and E.



To avoid damage to leading edge flap and/or fairing, do not overtighten clamping device.

(12) Secure fairing in place by tightening thumbscrew (details 219 and 220), views C, D, and E.

(13) Secure subassembly A by clamping with toggle clamp (detail 204), view B.

(14) Install NAS1399D5A-( ) blind rivet wet with MIL-S-83430 sealing compound through upper fairing, flap, and lower fairing (A1-F18AC-SRM-200, WP011 00), length of blind rivet is determined on installation (NAVAIR 01-1A-8), views F, G, H, and J.

(15) When subassembly A is tightened, make certain there is sealing compound squeezed out around the entire edge of the fairing. In areas where there is no sealing compound squeezed out, reinject sealing compound into locking areas with subassembly A still tightened.

(16) Allow sealing compound to cure at room temperature (65 - 100°F) for 18 hours with subassembly A in place.

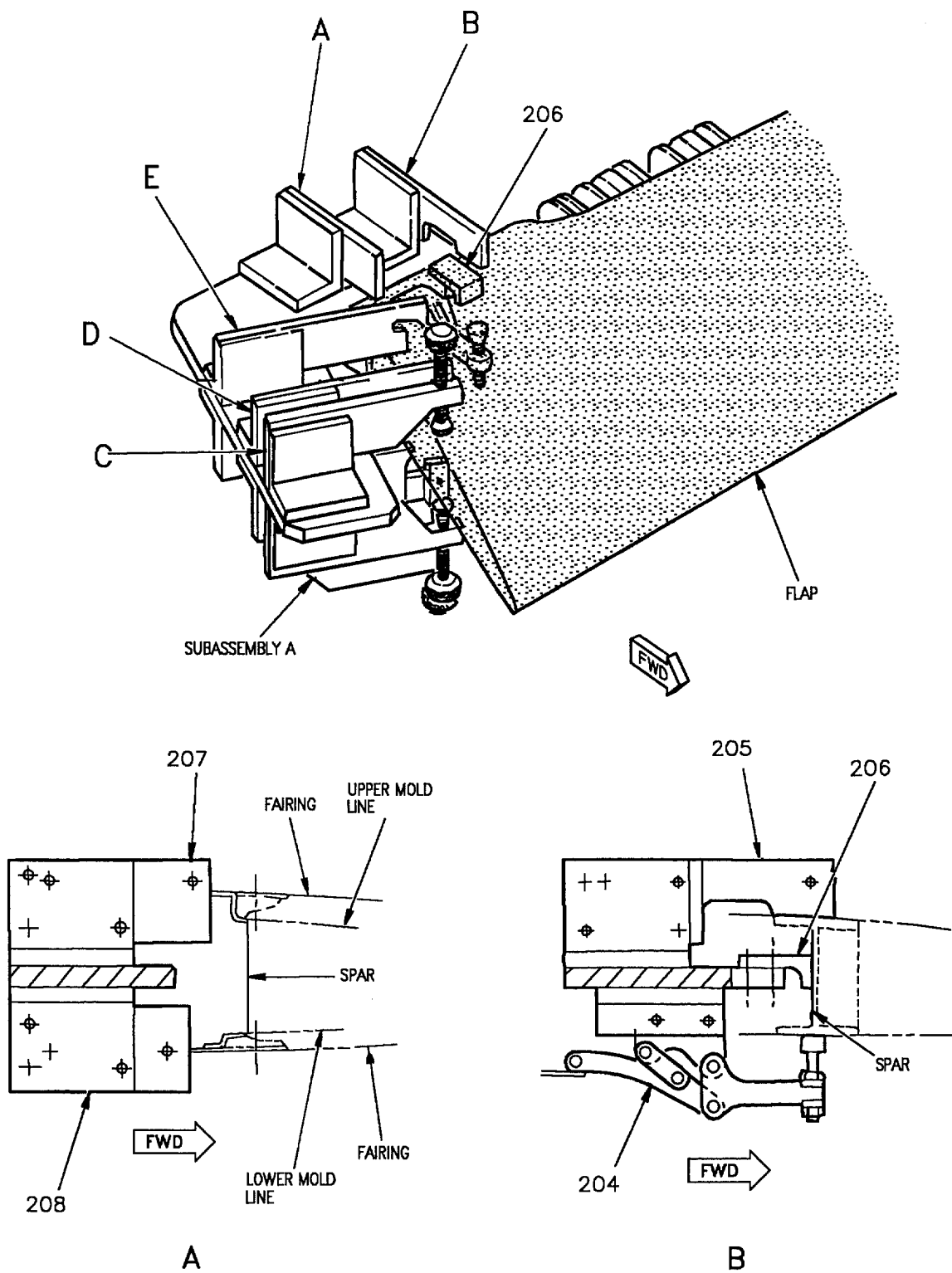
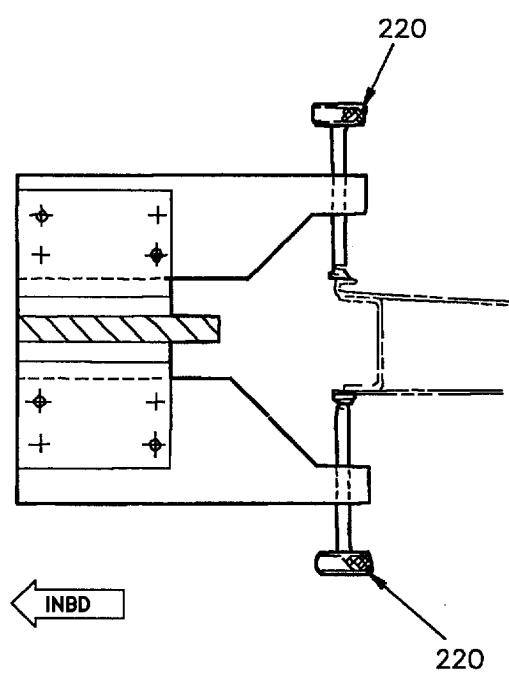
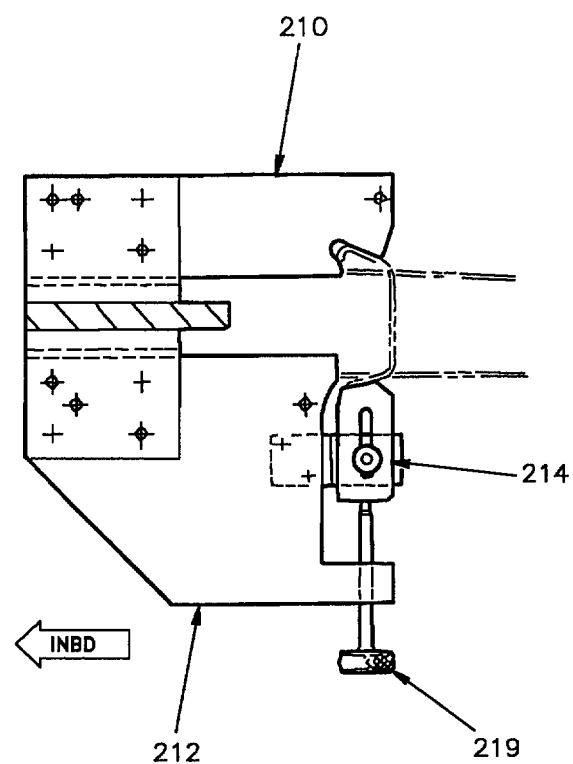


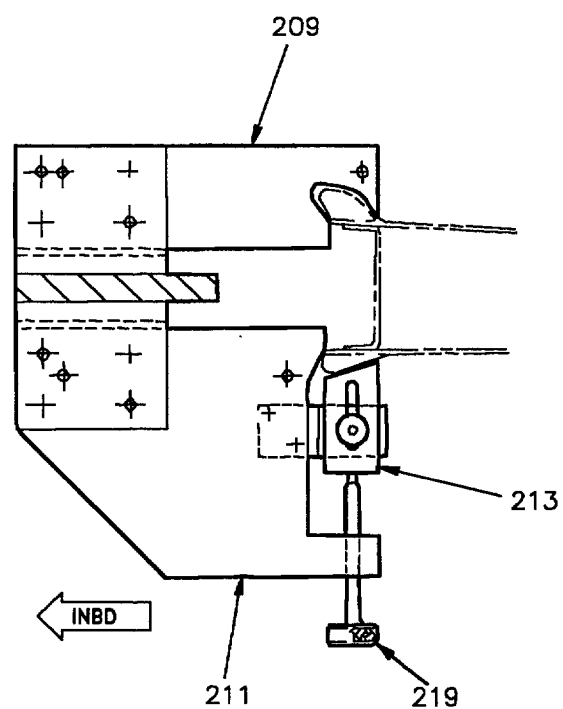
Figure 7. Fairing Replacement (Sheet 1)



C

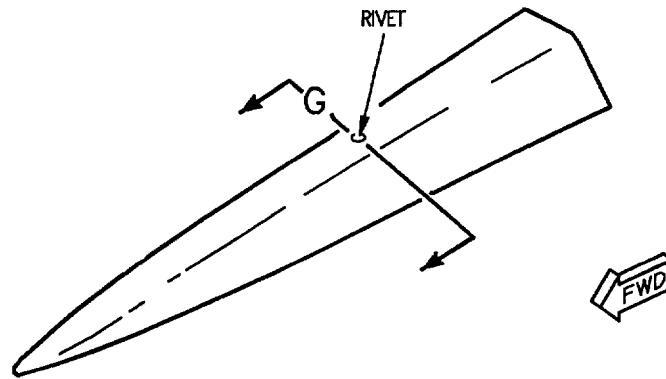


D



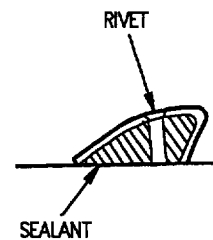
E

Figure 7. Fairing Replacement (Sheet 2)

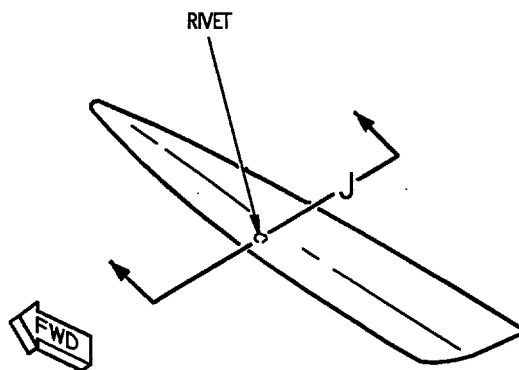


UPPER FAIRING, 74A190673

F

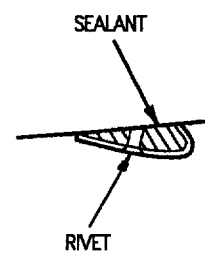


G



LOWER FAIRING, 74A198674

H



J

Figure 7. Fairing Replacement (Sheet 3)

Detail No.	Name	Function
Subassembly A	Frame	Supports and locates all details.
204	Toggle clamp	Secures subassembly A to flap.
205	Locator	Locates and aligns subassembly A.
206	Support	Supports and aligns subassembly A.
207	Locator	Locates and aligns upper fairing.
208	Locator	Locates and aligns lower fairing.
209	Locator	Locates and aligns upper fairing.
210	Locator	Locates and aligns upper fairing.
211	Locator	Locates and aligns details 213 and 219.
212	Locator	Locates and aligns details 214 and 219.
213	Locator	Locates and aligns lower fairing.
214	Locator	Locates and aligns lower fairing.
219	Thumbscrew	Secures details 213 and 214 in place.
220	Thumbscrew	Secures fairing in place.

Figure 7. Fairing Replacement (Sheet 4)